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Features

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The cover photo shows an aerial view of contoured farmland — wheat and young tomatoes in Pennsylvania. This method of soil conservation is more suited to large, mechanized farms in the United States and some parts of western Canada. In eastern Canada strip cropping and diversion terraces are more applicable. The Guest Editorial and feature articles in this issue draw our attention to the magnitude of the problem of soil degradation in Canada. Some possible solutions are also presented. Some other environmental concerns are also discussed. A special thanks to Professors Guy Mehuys and Chandra Madramooto for their assistance.

Guest Editorial

Stewards of the Soil Take Heed

by Professor Guy R. Mehuys
Soil Science, Department of Renewable Resources

"Man belongs to the soil. The soil does not belong to man." These few words capture the conservation ethic perfectly. That they were uttered by Senator Herbert O. Sparrow on November 22, 1986, at Macdonald College is no coincidence. He more than anyone else can lay claim to the title of "father" of soil conservation in Canada. Not that he invented the term, nor that no conservation work is going on in Canada, but rather because he is the person most responsible for bringing the problem of soil degradation to the forefront of public opinion. And it all started with a flight in a small plane over Saskatchewan in 1982. Although aware of the problem of salinization on the Prairies, Senator Sparrow had not realized until then just how much of Canada's productive land was threatened by soil degradation.

To be sure soil and water degradation problems are not the same everywhere, nor are they of similar magnitude across the country. What is sure, however, is that modern agricultural practices are causing a deterioration of the land base which will not reverse itself unless changes are brought to the way we grow, market, and sell food, domestically and internationally.

The 1970s were characterized by the rapid expansion of agricultural production in response to growing export markets. A decade later, we face overproduction, with sharply increased subsidies to the farming community and serious environmental impacts, not only in the form of deteriorating soil quality but also of pollution of surface and groundwater and loss of fish and wildlife habitat.

We are not alone in this predicament. The U.S., the E.E.C., and Australia are all beset with mountains of unsold farm products and have had to resort to providing varying degrees of protection and subsidy to their farm sector as well. But while the developed nations are at least thinking of reorganizing their agricultural priorities and strengthening their conservation goals, all-out production continues to be the credo of a number of developing countries - countries in which the environmental impacts of agricultural policy are not only great but often poorly understood.

The U.S. is the only country to date to have placed a limit on grain production (by paying farmers not to produce). At the same time the U.S. has enacted legislation to reduce the use of fragile lands. The Food and Security Act of 1985 uses the carrot-and-stick approach in at least two of its elements. In the conservation resource program, farmers who volunteer receive federal cost-share payments and annual per-hectare rental payments to convert highly erodible cropland to a less intensive use. The conservation compliance provision will require farmers to implement an approved conservation plan on highly erodible land beginning in 1990. If they don't, they forfeit their eligibility for most USDA farm-assistance programs. In the words of Norman Berg of the Soil Conservation Society of America: "If you like federal farm price supports, disaster payments, low-interest loans, and crop insurance, you had better like controlling soil erosion too."

What has Canada done? Has anything happened since the publication in the summer of 1984 of Senator Sparrow's Committee report "Soil at Risk?" Have our policy makers responded to the challenge tendered by Senator Sparrow? No legislation of the sort already enacted in the U.S. is envisioned for Canada. A national soil conservation law is an unlikely prospect in any event since the provinces have jurisdiction over the land resource. Instead the federal government has made a number of "deals" with individual or groups of provinces. For example, Ontario signed the $30-million SWEEP (Soil and Water Environmental Enhancement Program) which aims to reduce phosphorus loadings in Lake Erie from cropland runoff, decrease soil degradation, and improve the soil over a five-year period.

On February 17, 1987, Quebec and Ottawa signed a $35-million agreement on agri-food development, also for a five-year period. Only a portion of these funds ($10.8 million) is targetted towards soil conservation research and development. Of this sum, approximately equal proportions will be devoted to an inventory of the severity and extent of soil degradation problems in the province – a unique feature of the Quebec agreement, research on soil and water conservation, and technology transfer to the user sector.

None of these programs is likely to completely satisfy the conservation community, but at least Senator Sparrow's dire message has begun to sink into the minds of a wide constituency. While the farmer must come to realize that converting to soil – and water – conserving practices is in his own long-term interest and that he is responsible for proper stewardship of the land and water resources that society has entrusted him with, by the same token conservationists must recognize that farming has to be a profitable venture. A profitable farm does not just mean a prosperous farmer, it also means a healthy farm.

Professor Guy Mehuys, right, and Peter Kirby discuss surface run-off monitoring equipment that is being used to determine the effects of different cropping and tillage practices on rates of soil erosion at Macdonald College.

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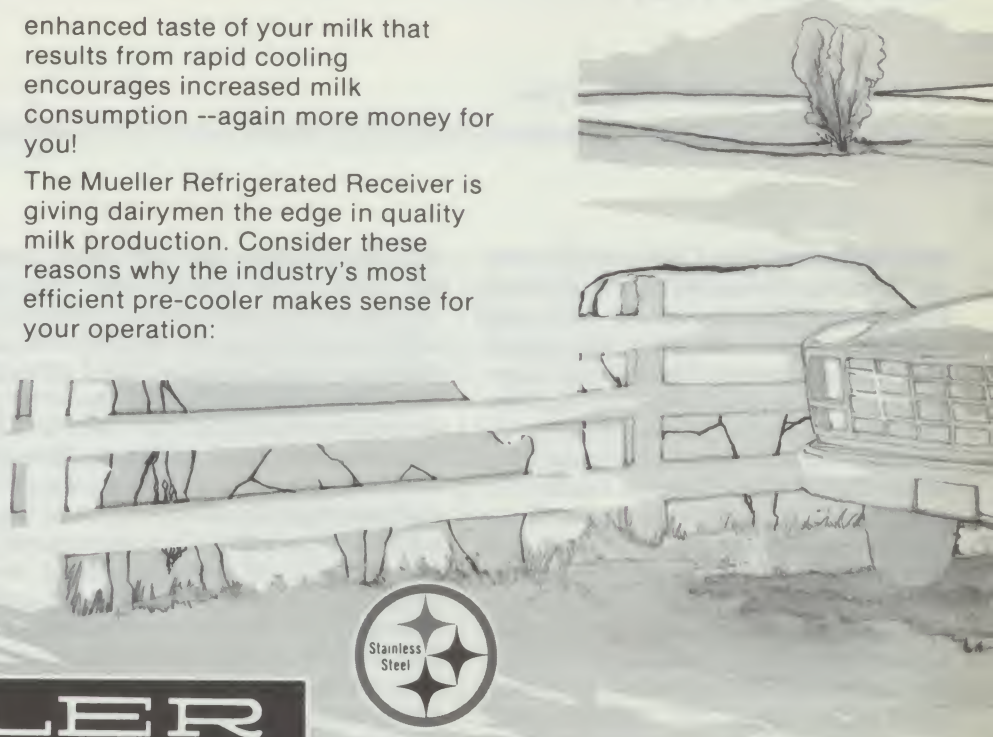

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Soil at Risk

by Senator Herbert O. Sparrow

(Senator Sparrow was Chairman of the Senate Standing Committee on Agriculture, Fisheries, and Forestry that, in 1984, held hearings in Ottawa and did a cross-country tour inviting interested individuals to present briefs on soil and water conservation throughout Canada. Six months after the hearings the Committee published their report "Soil at Risk: Canada's Eroding Future." Senator Sparrow was at Macdonald College last November 22 to speak at the Resource Efficient Agricultural Production (REAP) Conference. We are grateful to Senator Sparrow for allowing us to publish parts of his speech in this issue. A summary of the REAP Conference may also be found in this issue.)

Our soils are at risk. Our future is eroding. Soil degradation is a serious national problem requiring national attention. The Ontario Chapter of the Soil Conservation Society of America made this statement to our Senate Committee: "Soil erosion may well be the most underrated yet most damaging natural resource problem of the 80s. Must we wait for crisis conditions before action is taken to safeguard our scarce and dwindling soil resource base?" And in the Agricultural Institute of Canada's publication "Will the Bounty End?" we read, "Canada may be headed toward the greatest environmental disaster in its history. A disaster that would produce harmful economic effects unparallelled since the depression. The threat is nothing less than the destruction of the land's current capacity to continue producing food."

It is extremely important that this message be brought to as many people as possible from coast to coast, urban and rural alike. Our country is facing the most serious agricultural crisis in its history and, unless action is taken quickly, Canada will lose a major portion of its agricultural capability.

In 1984 the Standing Senate Committee on Agriculture, Fisheries and Forestry established a sub-committee to study soils and soil conservation throughout Canada. Travelling across the country, gathering valuable information from individual farmers and organizations, the Committee found that while soil conservation work is underway, there is no general commitment and no overall plan for dealing with soil problems. The Committee heard over and over again that most farmers are aware of the problems that affect their own land but that they often have neither the financial resources nor the expertise necessary to overcome them. Overall, wherever the Committee held its hearings and subsequently at many other local meetings that I have addressed, the reaction has been the same: acknowledgement that problems do exist in their own region, surprise that similar problems exist elsewhere in the country; a desire to do something about them; and a frustration that the resources required aren't available.

When I talk about soil degradation, I'm talking about erosion, acidification, salinization, compaction, monoculture, the loss of organic matter, the devastating effect of sand and gravel operations, of oil and mining operations, of urban expansion, of highways and railways, pipelines, power lines - all destroying millions and millions of tons and millions and millions of acres of our most precious natural resource, topsoil. These forms of degradation take place in nearly every farming community of this nation.

Senator Herbert O. Sparrow

Attempts have been made to establish the losses due to soil degradation across Canada. Estimates have been made that water erosion has caused annual topsoil losses of as high as 64 tons per acre (30 tonnes per hectare per year) in the Fraser Valley of British Columbia; yields have been reduced by up to 66 per cent on severely eroded lands in Ontario and in New Brunswick, and land in row crops can erode at rates as high as 247 tons per acre per year (100 tonnes per hectare per year). Conservative estimates of the dollar loss due to water erosion are $345 million per year.

In my own part of the world, the Canadian Prairies, wind erosion is a major problem, particularly in southern regions of Alberta, Saskatchewan, and Manitoba where crops have been completely wiped out during spring storms before seedlings become established. During years of drought, when there has been no snow cover, wind erosion has also been a serious problem during the winter months. Wind erosion is also a problem in eastern Canada. On Prince Edward Island, wind erosion accounts for considerable topsoil loss on potato lands. The organic soils of southern Quebec are being badly eroded by wind and, if nothing is done to reduce the rate of loss, these fertile soils could be lost within 20 years. The cost of yield losses and higher input costs due to wind erosion have been found to amount to around $250 million on an annual basis.

About 100 years ago, the Atlantic provinces had about 18 inches of topsoil. They now have an average of six inches and are losing it continuously. I was in the St. Thomas area of Ontario in April 1984 and could not leave the area because a dust storm had closed the 401 Highway for a full day. Being from Saskatchewan, I thought that could never happen in Ontario with its lush growth and moisture. Can you imagine the millions of tons of topsoil that

that went into the lakes and rivers and streams. The stewardship of the soil is not taking place as it should be to protect our soils.

Salinization, particularly secondary or man-induced salinity, is a very serious problem, again in the Prairie provinces, estimated to be increasing at a rate of 24,700 acres per year (10,000 hectares per year) with a cost estimated at $180 million. Along with compaction and acidification which are more prevalent in the humid regions of the country, it is reasonably safe to say that almost every acre (hectare) of agricultural land in Canada is subject to one form of soil degradation or another, at a cost - in my opinion: a very conservative estimate - of $1 billion per year.

This figure does not include the off-farm costs of soil degradation. The actual effect of erosion on waterways is very serious and also very costly. In Ontario alone, it is estimated that the dollar cost of erosion on waterways, sedimentation of ditches, damage to inland lakes, reservoirs and channels was over $100 million for 1984. The actual cost of damage to wildlife, physiological stress on fish due to the clogging of their gills and the increase in their susceptibility to disease, or the chemical damage to aquatic life and habitats from herbicides, pesticides and fertilizers washed into the water resources, is incalculable.

The reaction of most Canadians to the soil problems that they read about in the newspaper, or to the blowing soils that they are shown periodically on television, is "well, it's a big country; even if these soils are damaged, there is always more land to bring into production." But maps can sometimes be misleading. Canada's total land area is 2278 million acres (922 million hectares) but only 7 per cent of this is suitable for farmland. "Prime" agricultural land represents only one-half of 1 per cent of the country's area. "Dependable" land, land not seriously constrained by climate or soil type, covers about 5 per cent of the total land mass. The remainder is either too far from markets or is in areas that are not climatically suited to agriculture.

If you go to the top of the CN Tower in Toronto on a clear day, you can see 50 per cent of all our No. 1 and No. 2 topsoils in all of Canada. That soil produces 65 per cent of all the agricultural products produced on No 1 and No 2 soils, but urban expansion is spreading out along the roads and highways out of Toronto. In Ontario land is being eaten up in industrial and residential expansion on the basis of 26 acres every hour! Lost forever. This is happening all across this nation. Every 10 years we lose close to three million acres of land for urban development. That is over twice the size of Prince Edward Island.

It does not take very long for severe erosion to occur, especially when runoff is allowed to become concentrated. This is the result of a 10 minute summer storm. Construction of a grassed waterway would be required to evacuate this amount of runoff safely. (Photo: J.-L. Daigle)

To date in Canada, a comprehensive national soil conservation policy has not been developed. This is due, in part, to the shared federal-provincial jurisdiction over agriculture, and the fact that, while the provinces have jurisdiction over natural resources, the federal government has the research capability. Most provinces do have programs that attempt to deal with local problems, some of them very successfully, and the federal government does have agreements with provinces to treat specific problems but there remains no full-scale national program.

Such a program must be developed carefully, and must contain a number of elements. It must be site-specific, low-cost and cost-effective. It must also be designed to complement the knowledge and the expertise of the farmer, because it is not the bureaucrats and the scientists who can save the soil resource. It is the farmers with their closeness to, and their understanding of, the land who can and must conserve the soil.

In "Soil at Risk" the Committee made a number of recommendations with this in mind. The Committee recommended that federal and provincial governments allocate more funding to soil conservation programming and research including technology transfer; that financial incentives be provided to farmers to help defray conservation costs; that a council on soil and water conservation be established to provide a forum for the discussion of soil conservation issues and to make policy recommenda-

tions on soils to all levels of government; that land-use legislation be enforced and that a comprehensive federal and provincial soil and water conservation policy be developed and adopted which clearly states governments' intentions to make soil conservation a priority in the development of all its policies, programs, and projects.

I am pleased to say that a number of the Committee's recommendations have come to fruition. Soil conservation was put on the agenda of the First Ministers meeting in November of 1985. Soil Conservation Week was declared first in May 1985, then in May 1986 and again the week of April 13 to 17 for 1987. A national conference on soil conservation was held in April 1986 in Saskatoon and in the January 1986 budget soil conservation was one of the few areas in Agriculture Canada to receive increased funding.

The Senate Committee on Agriculture, Fisheries, and Forestry has since studied the issue of herbicide pricing in relation to soil conservation. It issued a short report in February 1986 suggesting methods of decreasing chemical costs for all farmers but with specific attention to those using conservation practices. The Committee waits impatiently for at least the spirit of its other recommendations to be acted upon.

I am pleased to say that since the release of the Senate Committee's report, "Soil at Risk," many urban dwellers have become aware of the plight of Canadian agricultural lands. This has come about to some extent through media follow-up on the report and through a major effort on the part of the Committee to make the report available to schools and community groups. I believe that because soil conservation is becoming an issue amongst the electorate, the federal and the provincial governments have become more positive in their approach towards soil conservation. I hope that this approach will continue and broaden.

One of the weaknesses of human nature is to be inward-looking, to see what matters directly to you and not beyond. I have mentioned that initially this was the attitude that the Senate Committee found in the different regions of Canada. Canadians now are beginning to realize that we need each of the parts of Canada to make up our Country. All of Canada's land must be cared for and conserved. The same philosophy can be applied in a broader context. Each country must look after its own soils, but we all have to look after the soils of the world as a whole. To allow one area to fall into a state of irretrievable degradation may not be catastrophic in itself but the possibility that this might happen again and again is frightening. Soil degradation is a problem that we must face farm by farm, province by province, nation by nation.

There is need to approach any change with caution and not to expect everything to work immediately. Although soil problems may be recognizable, it is difficult to radically change traditional farming practices overnight. Nevertheless, to ignore the urgency of the problem is to ignore the prospects for our children's future.

Man belongs to the soil. The soil does not belong to man.

In the potato-growing area of New Brunswick the control of catastrophic erosion losses has required changing the layout of entire fields and the construction of terraces along the contours to reduce slope steepness. The old fields were laid out straight up-and-down the slope (their limits are still visible in the background). (Photo: J.-L. Daigle)

Surface inlet and berm for retardation, collection, and disposal of surface runoff. This system is beneficial for controlling soil loss due to water erosion. (Photo: C. Madramootoo)

Soil Losses in Southwestern Quebec: A Case Study

by Professor Chandra A. Madramooto and Robert Gordon, Graduate Student
Department of Agricultural Engineering

Until recently, soil erosion research in Quebec had not received much attention. Significant soil loss occurs in the southern part of the province because the climate, soils, and land use of the region are very conducive to high erosion rates.

The mean annual precipitation is approximately 1000 mm. During the growing season, high intensity, short-duration thunderstorms occur frequently. It is also evident that spring snowmelt and runoff conditions induce significant amounts of erosion. Windspeeds in excess of 20 kilometres per hour can also be expected.

Corn, soybeans, and small grains are intensively cultivated at the expense of hay and pasture. It is estimated that there are approximately 180,000 hectares intensively cropped and susceptible to erosion in southwestern Quebec. Fall ploughing is extensively practised to avoid spring seeding delays. There is also considerable disking and harrowing of soils during the spring, sometimes in adverse weather conditions. Virtually no conservation tillage is practised. Fence rows and woodlots have been cleared and removed to facilitate the use of large machinery. With inadequate protective cover, the above conditions result in the exposure of erodible fine and medium textured soils. These exposed soil particles are easily removed by both water and wind. The region contains an extensive network of large, open drains to convey surface runoff. Eroded particles entering the drainage system transport chemical pollutants to numerous rivers and streams, severely affecting water quality and aquatic environments. Despite the severity of soil erosion in the region, there were no data on erosion rates.

Field Study

In 1985 we established a field-scale study in order to obtain an estimate of soil loss due to both water and wind in southwestern Quebec. Recommendations were also made to the farmer regarding appropriate conservation measures.

The field chosen is located in the municipality of Godmanchester, 15 kilometres from Huntingdon. It was selected because of the tremendous soil losses experienced by the farmer who owned the field. Wind erosion was thought to be particularly severe. The predominant soil type is silt loam (28 per cent sand, 55 per cent silt, 16 per cent clay). The soil has 2.5 per cent organic matter and the saturated hydraulic conductivity was 0.32 m/day. The area of the field is 16.25 hectares. The average field slope is 0.65 per cent. The field was continuously cropped in corn for several years.

A topographic grid survey and the universal soil loss equation were utilized to obtain estimates of average annual soil loss. A topographic survey of the field had been conducted in 1970 and a contour map was prepared. A similar topographic survey was carried out in 1985 by taking spot elevations on a 50- metre grid system. A new contour map was also drawn. The depth of soil loss or deposition within each grid or cell was then calculated. The topographic survey technique permitted total soil loss due to both water and wind erosion to be estimated. Differences in soil surface elevation were also due to consolidation and compaction and uplift of soil particles due to tillage.

Our conclusions were that the mean annual soil loss from a 16.25 hectare field located in southwestern Quebec which was under continuous corn and conventional tillage was estimated to be approximately 18.8 tonnes per hectare. This loss was due to both water and wind erosion. The universal soil loss equation was applied to the field and a soil loss of 4.4. tonnes per hectare per year due to water erosion was predicted. It was therefore estimated that approximately 14 tonnes per hectare per year of soil was being lost by wind erosion. This estimate of wind erosion may not be unrealistic, considering the severe wind storms experienced and reported by the farmer. Large soil deposits are highly visible along the laneways and tree lines. Due to the nature of the cropping and tillage practices carried out by the farmer, little stubble is left on the field and there is much exposure of the

Aerial view of the field (upper left) studied in southwestern Quebec.

soil. Particle-size analyses of soil deposited along the laneways and tree lines were conducted. These results showed that the most susceptible soil fractions to wind movement were in the particle diameter range of 2.0 mm to 50 micrometres.

Recommendations

Conservation practices to minimize water and wind erosion were recommended to the farmer. To minimize wind erosion, more crop residue and stubble should be left on the field. Wheat and rye stubble have a finer texture and denser residue than corn. These crops should therefore be grown in rotation with corn. Wheat and rye residue would provide an excellent mulch and minimize soil loss by wind prior to planting and after harvest.

Estimated soils losses (in tonnes per hectare per year) due to water erosion for various crop rotations in this particular field would be: continuous corn - 4.82, corn-corn-grain, 2.72, corn-wheat-green manure, 1.78, and corn-soybean-wheat-green manure-2.3. These estimates were based on fall ploughing.

The predicted soil loss (in tonnes per hectare per year) for various tillage practices with continuous grain corn would be spring ploughing - 3.74, spring chisel - 3.08, spring disk - 1.32, and no-till 0.88. Therefore, indications are that the farmer should pursue a corn-wheat-green manure crop rotation with either spring disking or a no-till system which could reduce water erosion by at least 60 per cent of current soil loss.

Planting windbreaks would also be advantageous. Tree lines established 100 m apart would provide adequate wind protection and also facilitate the movement of farm machinery.

Greater attempts should be made by farmers to adopt some of the conservation practices described above. There is also a need to control surface runoff on croplands. Adequate surface and subsurface drainage can also minimize soil loss.

Acknowledgements

The authors wish to thank Mr. Leonard Leblanc, on whose field the study was conducted, and Dr. Suzelle Barrington, who provided many useful ideas during the field study.

Minimizing Erosion While Maintaining Productivity

by Aubert Michaud
Extension Services

Our guest editorialist Professor Guy Mehuys of the Soil Science section of the Department of Renewable Resources was one of the Quebec scientists asked to present a brief to the Senate Standing Committee on Agriculture, Fisheries, and Forestry. Professor Mehuys has been supervising a soil erosion research program at Macdonald College since 1983.

At first, studies focused on the seasonal pattern of soil erosion. By collecting runoff and soil loss data from field plots year round, the study helped in pinpointing the timing of soil erosion in southern Quebec. After analyzing three years of data, site characteristics were shown to be particularly important in governing seasonal variations in soil losses. While some sites lost more soil due to rain in the summer than due to snowmelt in the late winter-early spring period, other sites were more affected in the latter period. For most sites, however, soil thawing was identified as a critical period of high susceptibility to erosion by water.

A second project involved the conception and use of an outdoor rainfall simulator on agricultural fields in the Montreal and Eastern Townships areas. This equipment made the collection of runoff and soil loss data possible under a standard rainstorm pattern on a wide range of soil types. Direct and quantitative comparisons of soil susceptibility to erosion could then be made. Soil aggregation and the stability of soil structures in water were identified as the best indicators of soil susceptibility to erosion by rainfall. Thus the maintenance of an abundant supply of organic matter in the soil appears to be an effective management tool in reducing soil erosion by water.

Following these fundamental studies of erosion phenomena, the research program has now been given a more applied orientation. The aim of the current project is to investigate the reductions in soil loss that can be achieved by adopting different cropping and tillage strategies in corn production. Feasibility, in terms of convenience and crop productivity, is also a major concern of the study. Grain corn will be grown on three plots that will have been ploughed in the spring, in the fall, or not at all (zero-till). Another plot will receive winter wheat and a fifth will remain fallow. Two soils, already identified in previous studies as having a different seasonal susceptibility to erosion, are under study.

The current research will shed light on ways to minimize erosion on the farm at a reasonable cost while maintaining crop.

Resource Efficient Agricultural Production

by Chantal Foulds

2nd year Undergraduate
Plant Science Major

The Regenerative Agriculture Association of Canada is a non-profit organization dedicated to improving farm profits and productivity while minimizing adverse health and environmental effects. Through REAP on Farm Research and Demonstration it is creating a new alliance between farmers, researchers, and extensionists to respond to the need for resource efficient agricultural production.

The Regenerative Agriculture Association of Canada was founded in 1986 by Roger Samson, a graduate student in the Plant Science Department of Macdonald College. During his travels, Mr. Samson saw the various independent research and educational organizations that existed in Europe and decided there was need for similar institutes in Canada.

On November 22, 1986, student members of this organization held a conference dedicated to Resource Efficient Agricultural Production at Macdonald College.

Topics dealt with at the conference centred around the current economic problems farmers are facing with the high cost of inputs and low returns, and environmental issues, specifically soil and water degradation. Solutions, old and new to these problems, were discussed.

The speakers represented a wide range of expertise: Senator Sparrow's speech "Soil at Risk" appears elsewhere in this issue.

Dr. Richard Frank of the Ontario Ministry of Agriculture and Food tackled the controversy of rural water quality and pesticides, specifically in relation to the use of pesticides in agricultural production. Pesticide movement from land to water can occur either by runoff during and after storms, leaching through the soil to the tile drainage systems, or by careless handling (spray drift, spills, etc.). Of all the causes of contamination, negligence and spills ranked among the highest. The predominance of atrazine in our waters reflects the impact of modern agricultural practices on the quality of our resources. Dr. Frank stated the importance of education on responsible pesticide use: the cost of prevention is a fraction of what it costs to clean up contaminated water.

Other speakers concentrated on practical ways of reducing costs by increasing the efficiency of on-farm and off-farm resources.

Roger Samson introduced the 4C Crop and Weed Management System: 1. Crop Rotation; 2. Cultivation; 3. Cover crops, and 4. Chemical Banding.

On his research trials (part of REAP on Farm Research and Demonstration) high yields of both grain and corn were achieved while weed control proved to be more economical using these techniques. In corn, weed control was achieved by banding a herbicide over the crop row and cultivation eliminated weeds in between the rows. In addition, red clover and ryegrass cover crops were seeded underneath the grain or corn at the time of second cultivation to provide a plowdown and further suppress weeds.

Dr. Ann Clark from the University of Guelph spoke of the profitability of using high quality forages - both conserved and pasture - as a means of finishing beef cattle and improving cropland rotations. She stated that about 90 per cent of the grains produced go to feed livestock both here and abroad. A change in our meat and milk consumption habits would have a marked effect on our plant production. Foreign countries are becoming more self-sufficient with their own crop production and less dependent on imports. Canada will not need to produce as much in the future, so why not concentrate on trying to be more efficient with forages rather than trying to increase production levels of grain crops. On intensely managed pastures the cost of live weight gain (LWG) varies between 30 to 50 cents a pound versus LWG of 75 to 95 cents in a feedlot. Pasture management, neglected in recent years, needs to be brought back onto farms, as concerns shift from attaining maximum production levels to reducing costs and regenerating our soils.

Mr. Winston Way, a recently-retired extension agronomist from the University of Vermont, showed how proper management is essential to retain manure's nutrient value. He advocates that manure is the nearest thing to a crop-growing panacea that can be found. Taking advantage of its countless virtues will increase farm profits.

A comparison of conventional cash grain farming and low input systems where manure and legume ploughdowns were used as nutrient sources came from Mr. Steve Peters of the Rodale Research Center, in Kutztown, Pennsylvania. It was shown to require one to four years of gradual conversion to a lower input system before soil equilibrium and good crop yields are achieved. The first two years of conversion resulted in lower yields but, by the fourth year, yields were comparable in both systems. He recommended starting the conversion with soybeans, small grains, or legume hay.

Mr. Peter also showed results of a survey of 400 farmers having an interest in regenerative agriculture. When they were asked why they had changed their farming practices, 82 per cent voiced an interest in cutting production costs and 76 per cent expressed environmental concerns.

At the end of the day a panel discussion took place. The members included Mr. Yvon Gosselin from the Ministry of the Environment, Mr. Guy Jacob from the Ministry of Agriculture, Dean Marc Trudel of Laval, Dean Roger Buckland of Macdonald, and two farmers, Mr. Neil McGregor and Mr. Daniel Lapointe.

Topics of interest during the panel discussion included subsidies, previous government policies, the quality of extension services, and the lack of sufficient research directed towards conserving resources. Recent emphasis in research has been on

the use of non-renewable resources. The two dairy producers on the panel responded to many questions on how they have successfully implemented more resource efficient techniques. All agreed that there is a need for farmers, researchers, and government to work together to solve our current farm problems. A major problem voiced by the academic institutions and government was the difficulty in changing the attitudes of those in charge of funds, whose allocation ultimately determines the direction of research. Patience was asked for, as changes take time. But how much time do we have?

A remark that Mr. Peters made and that was echoed throughout the day lingers in my mind. Every farm is unique, one solution does not exist for every farm situation. In today's society, where people want concrete solutions that work, it's hard to say, "Take this manure management system and see how you can adapt it to your farm." It requires you to think; think of all the resources you have and how they can be used more efficiently. Farmers were like this not so long ago and need to learn how to be resourceful once again. Researchers need to be generalists, practical, and progressive, always looking for better ways of using farm resources. Government needs to recognize that it's by supporting resource efficent methods, agriculture will move ahead to better days.

If you would like to receive a copy of the proceedings on Resource Efficient Agricultural Production, please send your name, address, and $5 to: R.E.A.P. Conference, Box 125, Macdonald College, Ste. Anne de Bellevue, P.Q. H9X-1C0

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New Course in Ecological Agriculture

by Professor Stuart B. Hill and Rod MacRae
Ecological Agriculture Projects

This past November the Faculty of Agriculture at Macdonald unaminously approved a new course entitled "Issues in alternative agriculture."

Over the last five years a great deal of concern has been expressed about the degradation of the agricultural resource base, declining rural communities, and farm bankruptcies. Some of Canada's best known political and scientific institutions have published reports dealing with specific aspects of these problems. Most importantly, however, community groups and the general public have increasingly expressed their concerns about the long-term sustainability of agricultural production, about the degradation of our environment, and the relationships between agricultural practices, food quality and health. A recent poll, published in the *Globe and Mail*, indicated that fears about environment destruction topped all other public concerns about Canadian domestic issues.

Some aspects of ecological agriculture have been practiced by a small number of producers for decades. Surveys of these farmers have consistently identified lack of relevant information and supportive research as primary barriers to development and entry of new producers. The supports that most producers can rely on - extension agents, the next door neighbour, agribusiness salespeople, university scientists, and trade journals - are generally of little assistance to ecological producers.

All these factors have, for some time now, pointed to the need for high-quality training in ecological agriculture. Practical courses have existed for a few years, but it is only recently that university students have been able to receive training in this critical area.

Ecological agriculture is a philosophy and system of farming that reflects a state of awareness. It involves benign designs and management procedures that work with natural processes to conserve all resources, minimize waste and environmental impact, prevent problems and promote agroecosystem resilience, self-regulation, evolution and sustained production for the nourishment and fulfillment of all.

ISSUES IN ALTERNATIVE AGRICULTURE LECTURE TOPICS

WHAT IS ALTERNATIVE AGRICULTURE?
- Introduction
- History

WHY IS IT IMPORTANT?
- Goals
- Ecology
- Environment
- Economy
- Socio-cultural Indices
- Health
- International Scene

HOW IS IT PRACTICED ?
RESOURCES AVAILABLE:
- Soil and Land
- Water
- Energy
- Gene Pool
- Human

HOW IS IT PRACTICED ?
TECHNIQUE & PRACTICE:
- Theories
- Fertilizing
- Cropping Systems (I)
- Cropping Systems (II)
- Plant Disease Control
- Weed Control
- Insect Control
- Livestock Production (I)
- Livestock Production (II)
- Agro-Forestry
- Appropriate Technology
- Food Quality
- Marketing
- Case Studies

HOW IS IT IMPLEMENTED ?
- The Process of Change
- Research
- Education & Extension
- Farm & Community Action
- Economic Aspects
- Political Aspects
- Conclusions

Figure 1

To reflect the needs of such a diverse system, the course has been designed to address philosophical and practical issues. Because it is an introductory course, a great variety of topics are addressed (Figure 1).

In addition, a different teaching process is being used in an attempt to demonstrate, in a practical way, the kinds of values that are inherent in ecological farming, such as awareness, self-reliance, and resilience. The instructors are encouraging the students to define for themselves their personal goals and to use the instructors as allies in meeting those goals. Assignments have been designed to approximate real world experience - popular articles for the farm media, surveys of the public and farmers, organizing events, and public speaking. The students are regarded as co-instructors in the course. They give seminars and report to the group on their assignments and projects. In future years, tours of "alternative" farms will be part of the curriculum. We have also included time in the course for developing group process and facilitation skills.

With this course as a first step, we hope to be able to offer an entire program in ecological agriculture by 1990. Ecological Agriculture Projects is a unit at Macdonald that sponsors workshops and seminars in ecological agriculture, serves as a link with other like-minded units and individuals, and houses a vast amount of books, literature, and reports that are available to staff and students at Macdonald and elsewhere. Students are asking us for such a program, and we are constantly receiving letters from across Canada and the United States, inquiring whether such a program exists at Macdonald. We believe that without such educational opportunities the sustainability of our agriculture cannot be assured. With the existence of Ecological Agriculture Projects, Macdonald has an opportunity and an obligation to provide training in ecological agriculture for future agricultural professionals.

Diagnostic Fertilization of Maple Stands

by Professor Willy Hendershot

Soil Science
Department of Renewable Resources

The forest decline that is being observed in southern Quebec and elsewhere in North America and Europe is thought by most concerned scientists to be related to air pollution and acid rain. The evidence for this is mainly the geographical distribution of forest decline and industrialization; those areas that are downwind of major pollution sources show varying degrees of forest decline.

Many researchers are looking for the primary cause of the decline and numerous hypotheses have been proposed, including direct toxic effects on the above ground parts of the plant by ozone, sulfur dioxide or other gases, and the effects on nutrient supply due to changes in the soil, including such factors as increased nitrogen levels, soil acidification, and accelerated leaching of base cations (Ca, Mg, K).

As a soil scientist, I have been investigating the possible effects of increased acid loading on various soil properties. From the simplest perspective, increasing the acidity of the precipitation will force the system to a new, more acidic equilibrium. In any system in which pH is being controlled by weak buffering reactions, as is the case in the acidic soils of southern Quebec, an addition of acid will result in a shift to lower pH. In contrast, many western Canadian soils and those developed on limestone are strongly buffered by calcium carbonate; in such cases acid additions will decrease the amount of calcium carbonate in the soil without altering the pH.

Soil acidification and the leaching of base cations may or may not be a primary cause of forest decline: the evidence is somewhat ambiguous. While acid precipitation is almost certainly contributing to soil acidification and loss of bases, this does not explain all of the changes that have taken place in the forest over the last 20 years. Even on sites with less than ideal natural soil fertility, the forests were healthy up until recently.

In the short term the question as to what is a primary cause and what is merely a contributing factor is academic. There is ample evidence that trees growing in nutrient rich environments - that also have the proper balance between nutrients - are showing fewer symptoms of decline. Studies have even shown that the resistance of plants to air pollution damage is a function of plant nutrition. This reasoning has led the West German government to begin fertilization of large areas of affected forest.

At Macdonald College we have just completed the analysis of leaves from about 60 maples from different parts of southern Quebec. In many cases there appear to be nutrient deficiencies of Ca, Mg, or K and, in addition, an imbalance in the Ca/Al molar ratio indicative of soil acidity problems. There is, therefore, strong evidence that liming and fertilization would be beneficial to sugarbushes. In order to avoid antagonism between different elements in the soil the applications of lime and fertilizer must be done correctly and the most desirable means of predicting the effect of different lime-fertilizer combinations on soil is with a computer model. I am in the process of writing such a model but it will have to be tested in the laboratory and field before it can be used with confidence. Beginning in May 1987 we will be undertaking liming and fertilization trials with the following objectives:

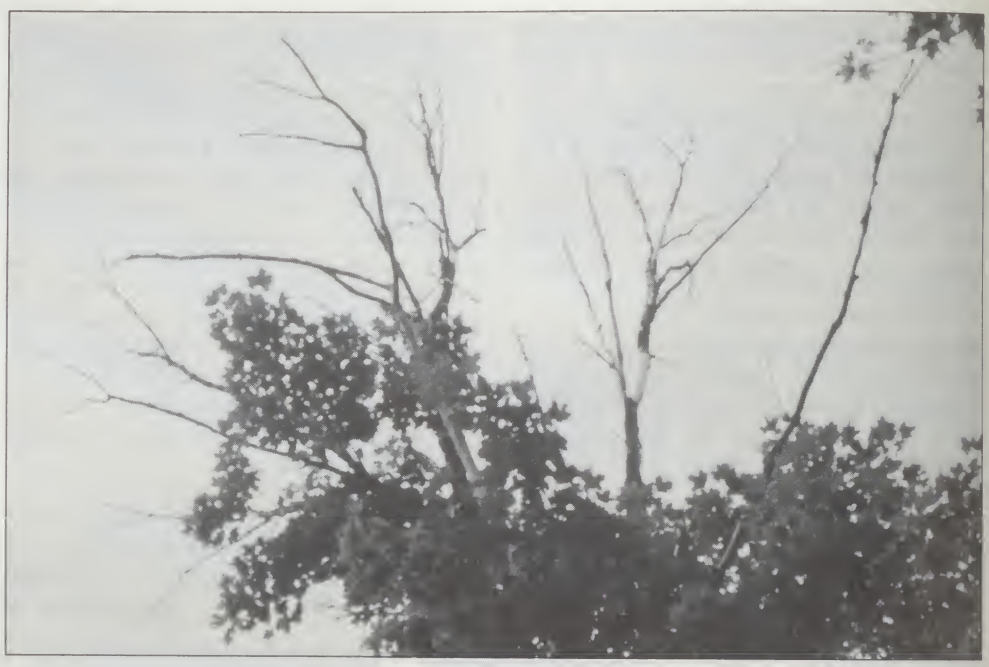
1. To identify lime-fertilizer mixtures that will have a positive effect on tree vigour;

2. To develop quantitative relationships between soil chemical analyses, foliar chemical analyses, and tree vigour so that fertilizer recommendations will be reasonable and cost-effective;

Christine Roberts-Belanger working on an experiment on the uptake of plant nutrients in acidified hydroponic solution. (Photo by H. Lalande.)

3. To study secondary effects of liming-fertilizing on turn-over of litter and the biocycling of nutrients and trace metals in hardwood forests.

We suggest that the project be undertaken at two levels. First, six sites in southern Quebec, mostly south of the St. Lawrence, will be selected, the plots established and treated. Soil and foliar analysis will be used to establish the relationship between the lime-fertilizer treatments, soil nutrient status, leaf content, and tree health. Second, two of the sites will be studied intensively to establish the effect of treatments on litter decomposition, transformations of N+P and soil solution chemistry and change in soil pH, base saturation, and cations on the exchange complex that result from liming and fertilization. Where applicable, computer modelling will be done to provide predictive tools to aid in formulating treatment recommendations.



A maple tree in advanced state of decline. (Photo by Arch Jones.)

The maple trees in this sugarbush show varying degrees of dieback. Photo by Arch Jones.

Sugarbush operators are searching desperately for an amendment that they can use to decrease dieback and are ready to try just about anything, possibly with ill effects. Applying the wrong fertilizers could aggravate the problem at great cost. The fertilizer industry is being approached for funding of this project; its response will determine the effort that can be put into the research on forest nutrition.

We are hoping to advance our knowledge of how forest systems function. The hypothesis presented may not be correct, but we think it is one of the most promising of those being advanced to explain forest decline. If we are right, maple syrup producers and eventually the forest industry as well will be able to make the correct fertilizer applications with confidence in the outcome. We plan to have information available before the start of the 1988 growing season in order that treatments can be recommended that will have a positive effect on tree health and productivity.

Lawn Care and Pesticides: A Toxicologist's Concerns

by D.J. Ecobichon, PhD
Professor, Department of Pharmacology and Therapeutics, McGill University.

Recent incidents involving the spraying of pesticides around homes, parks, industries and school playgrounds have resulted in accidental overspraying and the exposure of bystanders to aerial drift of pesticides with consequent damage to property, moderate-to-severe dermal reactions on exposed skin, asthma attacks and other real or perceived illnesses. These incidents, inflamed and embroidered by the media, have raised serious concerns about the safety of such practices in heavily populated urban/suburban areas. Questions have been raised in the minds of many whether or not: (1) these insecticides and herbicides are indeed safe; (2) the landscape-lawn care industry is really essential and; (3) applicators and users should receive rigorous training and certification before being allowed to handle such chemicals. The provincial government has introduced proposed legislation which, if enacted this spring, will give unprecedented control over all facets of pesticide use in Quebec. Given the fact that some chemical control of insect and plant pests will always be necessary, let us examine the problems associated with these agents more closely.

Pesticides, defined as chemical, physical or biological agents having the ability to eradicate (or control) an unwanted pest, are registered for commercial and home use by Agriculture Canada. Included in the registration are specific labelling requirements pertaining to usage for certain classes of pests, on application rates, and minimal safety precautions to be taken by the applicator in formulating and using the preparation.

Additional restrictions on use and sale of a pesticide may be implemented by individual provincial governments. There is a misconception in the minds of homeowners, gardeners, nursery operators and some commercial applicators that anything registered for use by the federal government is "SAFE." Nothing could be further from the truth.

Governments and the agrochemical manufacturing industry know that all pesticides are, by their very nature, toxic to some degree to different life forms. All pesticides have some inherent degree of toxicity. This cardinal rule is frequently forgotten when pesticides are misused, applied incorrectly, or insufficient attention is paid to environmental conditions prevailing at the time of application. The active ingredient may become hazardous to the applicator, his immediate family, his neighbours, local wildlife, beneficial organisms and pets. There is no such thing as a "SAFE" chemical. There are only chemicals that, under the explicit recommendations for use, have "LOW RISK" to the environment, animals and humans. The agent is "SAFE" only when used as directed!

The investigation of a large number of unfortunate incidents related to pesticides in rural, suburban and urban settings has led me to conclude that the problem is frequently not the chemical but the ignorance of the user about the potential dangers inherent in the chemical and the technology associated with the application of the formulation. Knowledge of the potential toxicity inherent in each pesticide is the best defence against possible poisoning! In my opinion, the weekend gardener with his handy, hand-pressurized,extinguisher-type,canister sprayer with adjustable nozzle or his garden hose attachment device is a menace to the neighbourhood. These two delivery systems are the best possible means of widespread neighbourhood "sharing" of pesticides since there is usually no means of effectively controlling the droplet size in order to minimize the aerial drift of small droplets. Droplets of 10-50 micrometres in diameter can drift 55-3300 metres from the source of generation even under light wind conditions. Commercial applicators, using pump-pressurized hoses attached to truck-mounted tanks, are not much better for exactly the same reasons. Formulated dusting powders, containing the active ingredient bound to kaolin, attapulgite or some other diatomaceous earth, are equally risky unless applied when there is little or no wind since, once again, the drifting of fine particles is a problem.

Can the technology of pesticide application be improved upon? Yes! In fact, the technology has been developed already but has just not been utilized, easier and seemingly cheaper options being employed. Herbicide solutions can be applied to grass by dragging "weed-bar" devices over the infested area rather than attempting to cover the entire lawn. Spot applications to dandelions can be carried out using "pogo stick" or "cane" type applicators that deposit a given volume of solution on the target. Granular herbicide or fertilizer-herbicide mixtures are available and, while they usually require some sort of dispersal device, the latter preparations can be safely broadcast by hand, with special attention or heavier application being reserved for areas of greater infestation. Bait preparations can be deposited in flower beds and granular formulations can be worked into the top inch of soil rather than spraying a liquid ineffectively. On the scale of commercial application, boom-and-nozzle systems that hug the ground and are equipped with anti-drift or splash skirts are now being used by a few companies. Cyclone-type dispensers equipped with rubber anti-drift skirts are available for the application of dusts or granular materials. It is apparent that devices and systems that maximize the delivery of pesticide to the target organism and minimize off-target deposition will see more use in the future as the controversy about pesticides deepens.

The amount of information that can be printed on a label is limited to only the pertinent data, the precautions in handling the pesticide being of a general nature. Many of the agrochemical manufacturing companies produce attractive brochures and books containing a wealth of information about plant diseases, insects, tips on gardening to avoid or reduce pest infestation, and precautionary and safety data pertaining to their own particular line of products. However, there are two problems that the agrochemical industry find particularly frustrating. The first is related to corporate image and credibility; i.e., people look on them as big, bad industry out to make a lot of money and who are not safety conscious. The second problem is a more basic one, that of horses, water troughs and drinking. People just will not

take the time to read either the information on the package label or acquire additional knowledge elsewhere.

Governments, both federal and provincial, prepare information packages on pesticides but, once again, lack credibility in the eyes of the consumer. This, plus intellectual laziness, join forces to defeat all efforts to protect people against the careless use and/or misuse of pesticides. Concerned public groups, such as the Pesticides Task Force, have successfully published and distributed, free of charge, a pamphlet, "*Safety with Pesticides*," dealing with the precautions to be taken when handling pesticides in the hope of fostering a different attitude toward pesticide use. This pamphlet (available by writing and enclosing a self-addressed, stamped envelope to Westmount Post Office, Box 117, Westmount, Quebec, H3Z 2T1) emphasizes the protection of the applicator (coveralls, rubber boots, solvent-impervious gloves, goggles or face shield while mixing), the protection of the environment (nearby wells, beneficial organisms, family pets, children, and neighbours) and tips on equipment maintenance, storage of pesticides and the disposal of empty containers. Some degree of success has been achieved even though the information contained in the pamphlet can be obtained readily from professionally prepared industry or government brochures. The bottom line is that the user must still read the material.

A summary of the contents of the pamphlet "Safety with Pesticides" is presented below in the hope that the readers will take heed.

- Learn about the potential hazards associated with any chemical pesticide before using it.

- Select the pesticide best suited for the particular task.

- Before spraying, be a good neighbour and advise those living nearby of what you are spraying and when, and inquire as to whether they have any known sensitivities to chemical sprays.

- Use extreme caution when applying liquid or dust formulations and do not apply when environmental conditions are inappropriate, i.e. windy.

- Do not eat or smoke while spraying.

- While spraying, remove pets and their food and water containers from the area to be treated. Cover fish ponds and keep children out of the area.

- Before spraying, inspect all equipment for leaking nozzles and hose connections, testing the cleaned and rinsed equipment with water and pressurizing it under conditions for use.

- Use separate sprayers for herbicides and insecticides.

- Carefully follow the directions on the label for the preparation of the diluted pesticide. Particular care should be taken on opening concentrated formulations not only because of the higher amount of active ingredient but because of the emulsifiers and solvents that can have irritating and corrosive actions on skin and can enhance the absorption of pesticide through the skin. Avoid spills or splashing of concentrate.

- Normal precautions should include the wearing of solvent- impervious gloves, protective coveralls or a rubberized apron, rubber boots, or leather shoes when mixing pesticide formulations. A set of goggles or full face shield should not be necessary under normal home use but such equipment should be used if large amounts of dilute formulations are being prepared.

- Measure the recommended amount of pesticide accurately.

- Overdosage is wasteful and may be less effective. Under-treatment will be ineffective, requiring re-application with costly chemical and increasing the risk of accidental exposure.

- Do not mix pesticides together in the hope of saving time. Chemicals are frequently incompatible and will precipitate out of solution.

- While mixing, a source of running water should be close at hand to wash spilled pesticide off skin, clothes, boots, etc. promptly and to dilute the pesticide spilled on the ground.

- Upon completion of spraying, all equipment, protective clothing and exposed skin of the applicator should be washed thoroughly. Never store contaminated equipment.

- Empty pesticide containers should be rinsed thoroughly, the material being added to the last spraying. Glass containers should be broken, while metal and plastic containers should be punctured, top and bottom, to render them unusable.

- Empty pesticide bags or cardboard boxes should be torn up and relegated to the garbage, along with the unusable cans. Never burn inflammable containers with rubbish in open fires.

- Never put leftover pesticides in unlabelled bags, food or beverage containers. Keep excess or leftover chemicals in the original containers with the labels intact.

- Pesticides should be stored in a well-ventilated, dry site, away from sources of food and water, sunlight, fire hazard, and at temperatures above freezing. Such storage areas should be locked and clearly marked "PESTICIDES STORED HERE. KEEP OUT."

The ultimate responsibility for pesticide use on your property is yours, whether you apply it yourself or have one of the many commercial applicators do it for you under contract. Consider the methods of application and choose the one that provides maximum safety. Discuss the what, where, when and how of pesticide use with the representative of the commercial firm and understand what they are applying and why it must be used. Be critical of their methodol-

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Mac International

Soil Erosion Research in the Caribbean

Farming in the eastern Caribbean is carried out primarily by farmers on holdings that are less than 10 hectares. These small farms are located on slopes ranging from 5 to 50 per cent. The islands of the eastern Caribbean are mountainous and receive heavy equatorial rainfalls. The average annual rainfall in St. Lucia, for example, exceeds 2,500 millimetres. The rains are also generally of very high intensity. Forests are constantly being cut down for the production of bananas, vegetables, charcoal, and the establishment of new farmlands and roads. All these conditions are conducive to high levels of soil erosion, and in some islands erosion rates as high as 80 tonnes per hectare per year have been measured.

McGill International and Macdonald's Department of Agricultural Engineering received a grant from the Canadian International Development Agency (CIDA) to provide training and research and development in soil conservation in St. Lucia. The project is being carried out in conjunction with the St. Lucia Ministry of Agriculture, with the Project Co-ordinator being Dr. Chandra Madramootoo of the Department of Agricultural Engineering.

As part of the project, a St. Lucian agricultural engineer, Mr. Peter Norville, is doing his Masters at Macdonald College. He will be involved in the development and evaluation of such soil conservation measures as terraces, contour drainage, and strip cropping.

An overall requirement of the project is to ensure that farmers can cultivate steep slopes while maintaining some areas under forest and tree crops and carry out cultivation practices which limit excessive soil losses.

Papayas grown on terraces in Puerto Rico. Similar terraces are found in St. Lucia and other islands.

Karhu Canada Donates to Morgan Arboretum

A generous donation of $2,000 to the Morgan Arboretum has been received from Karhu Canada to assist with the purchase of an Alpine Bombardier Skidoo to help improve the maintenance of trails and the cross-country skiing in the Arboretum. This equipment, when attached to a port-a-log device can also be used to perform small log extraction tasks on sensitive sites on the property where drainage and trails could be damaged by conventional equipment.

Notable Events

New Cattle Facilities: Official Opening

When Alan C. Webster, Dip '55, cut the ribbon on February 6, 1987, on behalf of his uncle R. Howard Webster B.A. '31, O.C., to officially open Macdonald's cattle teaching and research facilities, it acknowledged the completion of Phase I of the redevelopment of the Farm and signalled the beginning of an exciting new venture for the college.

The February 6-7-8 program was a great success and provided an excellent opportunity for guests, suppliers, friends, farmers, students, staff and the public to view the new facility.

Friday morning's program surrounding the official opening was attended by over 300 special guests who were welcomed by Vice-Principal Roger Buckland. Comments were made by various dignitaries, including McGill's Chancellor A. Jean de Grandpré, Principal David L. Johnston, Michel Champagne, M.P., Parliamentary Secretary to the Minister of Agriculture, Canada, and Gaston Grammond, Assistant Deputy Minister, Ministry of Agriculture, Fisheries and Food, Quebec.

The afternoon activities at the new cattle facilities not only allowed time for visitors to tour the facilities but also focused as well on our founder, Sir William Macdonald, and included comments by Mrs. David M. Stewart, the Founder's Day toast by Engineering graduate student Stuart Hackwell and closing comments by Students' Society President Elizabeth Mansfield.

On Saturday, February 7, over 1,000 visitors toured the new facilities and on Sunday, despite a snowstorm, over 500 visitors turned out.

Photos by Ralph Emery, Rick Kerrigan, and Hazel M. Clarke

Chancellor A. Jean de Grandpré addressing the special guests on the importance of the new facilities to Macdonald and the community it serves.

Guests attending the official opening were representatives from agriculture, universities, government, and industry, as well as graduates and friends.

The official ribbon cutting: Alan C. Webster, centre, cutting ribbon assisted by, l to r, the Honourable Pierre H.Cadieux, M.P., Mrs. David M. Stewart, Principal David L. Johnston, Chancellor A. Jean de Grandpré, Deputy Minister Gaston Grammond, MAPAQ, and Michel Champagne, M.P.

The Webster clan and the Chancellor discussing the day's events, l to r, Sally Webster, Alan C. Webster, Lorne C. Webster, Susan Riddell, Chancellor A. Jean de Grandpré, and Philip L. Webster.

Students preparing animals for the Livestock Show while visitors tour the facilities.

Part of the Cattle Facilities Project Team, l to r, Dean Roger Buckland, Dr. Bruce Downey, Chairman of Animal Science, Associate Vice-Principal Sam Kingdon, Stephen Joo, Assistant Director, Physical Plant, and Rudi Dallenbach, Farm Director.

The Macdonald Branch of the Graduates' Society of McGill awards Gold Keys to selected Macdonald students for their contributions to extra-curricular activities. This year's awards were presented by Mrs. David M. Stewart at the afternoon activities. The following students received awards: Kelley Allen, Betsy Wells, Andrew Ainsworth, Lise Ledoux, Elizabeth Mansfield, Yolanda Gynra, and Keith Duhaime and are seen here with Students' Society Secretary Jean Brown and Nominating Chairman Peter Knox.

Well done Macdonald Oleana Valor for being the hit of the day! Her calf was born just seconds before the official opening ceremonies and attracted a large crowd of onlookers.

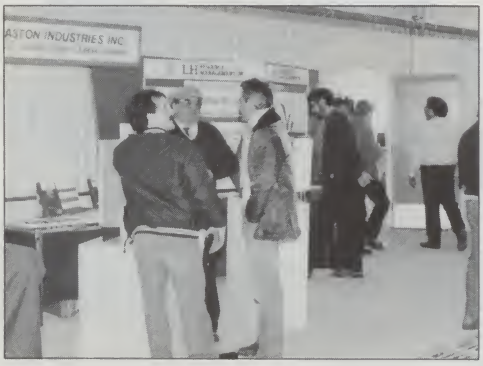
The current Dean and two past Deans get a chance to discuss Macdonald's bright future, l to r, Dr. George Dion, Dr. Roger Buckland, and Dr. L. E. Lloyd.

Gerald Duncan, President of the Quebec Farmers Association, and Lucy French, President of the Quebec Women's Institutes, discuss Chateauguay Valley happenings while attending the official opening.

Diploma and Teachers' graduates Robert and Joan Ness congratulate the Grand Champion Dairy Showman Alain Rouleau and Reserve Champion Luc Proulx. Robert Ness served as judge of the dairy competitions.

The College Royal and Livestock Show took place during the official opening. The maple syrup display won first prize among the students' entries.

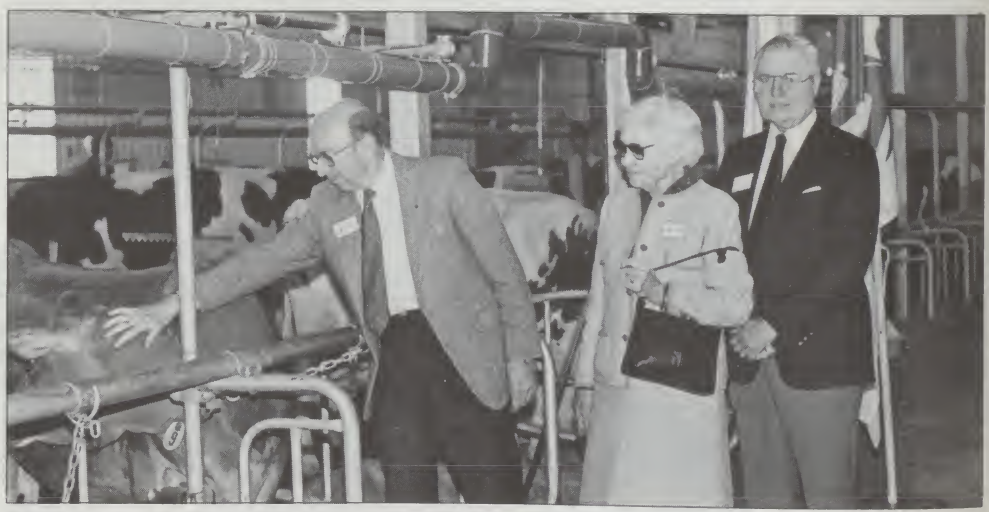
Gordie Beaulieu, Herdsman, touring a group of farmers and graduates through the facilities during Open House which attracted some 1,500 visitors.



Some of the public enjoying the suppliers' exhibits.

Some of the Macdonald Livestock Club members showing beef cattle.

Principal Johnston and Vice-Principal Buckland looking over - with great interest - the new issue of The Macdonald Journal.



Admiring one of the Jerseys in the herd are, l to r, D. Lorne Gales, Isabel Gales, and John Heney, Director of the McGill Advancement Program.

Touring the beef area with obvious interest are, l to r, Dr. Louis Johnson, Dr. George Dion, and Chancellor A. Jean de Grandpré.

Admiring the Holsteins are, l to r, Pierre Leonard, Secretary of the Holstein Association, Lucille Wakefield, Publisher of *Le Bulletin des Agriculteurs*, and Jean Guy Roy, CBC Radio Canada.

Using the metabolism cage to pose on are, l to r, Gilbert Minor, BSc (Agr) '85, Kim McGinnis, BSc (Agr) '85, Mary Matheson, Masters student in Entomology, Sandra Smith, Third Year Animal Science, Lise Ledoux, Third Year Dietetics, and Gerald MacDonald, Masters student in Plant Science.

Dr. Jean David, 1, the Hon. Pierre H. Cadieux, M.P., and Vice-Principal, Academic, Samuel O. Freedman enjoy touring the facilities.

Issues in Human Nutrition

The Question of Carbohydrates: Pros and Cons

Introduction

Dr. Kristine G. Koski, who is originally from Seattle, Washington, is a recently-recruited Assistant Professor in the School of Dietetics and Human Nutrition at Macdonald College. She holds a joint appointment as Assistant Professor in the Department of Medicine, Division of Experimental Medicine at the downtown campus of McGill.

Professor Koski did her B.Sc. and M.Sc. studies at the University of Washington, Seattle, and her Ph.D. in Nutritional Biochemistry at the University of California, Davis. During her Masters and before starting her Ph.D., Professor Koski worked for the Department of Pediatrics and Preventive Medicine at the University of Colorado School of Medicine as a bilingual nutritionist on a health care team following migrant populations in rural Colorado. Professor Koski also taught Nutrition and Foods for two years at Central Washington University, Ellenburg, Washington. Prior to being lured to Macdonald, Dr. Koski was a post-doctoral fellow in biological chemistry in the School of Medicine at Davis, and she holds a three-year grant from the American Institute of Nutrition/Nestle in maternal and child nutrition to study carbohydrate metabolism of the fetus and neonate.

Professor Koski is a Registered Dietitian in the American Dietetic Association and looks forward to joining the Canadian Dietetic Association.

At the undergraduate level, Professor Koski teaches Diet Therapy I. She has been given a mandate to re-organize the Nutrition major, and she will be an advisor to students taking that major. Professor Koski will also be involved in the development of the graduate program in human nutrition and this will include developing a course in maternal and child nutrition and teaching clinical nutrition.

We would like to welcome Kristine G. Koski to the Macdonald community and to thank her for taking the time to describe her research work.

Before we discuss your research, could you describe carbohydrates and tell us what foods contain high amounts of carbohydrates?

The carbohydrates in foods are primarily sugar, starches, pectin, hemicellulose, cellulose and lignin. Simple sugar and starches meet our energy needs by providing 4 kcal/gram. Pectin, hemicellulose, cellulose and lignin are the components of dietary fibre. Fibre does not provide calories, but it does play an important role in the gastrointestinal tract. Complex carbohydrate is found in high concentration in all breads, cereals, grains, flours, fruits and vegetables. Simple carbohydrates, such as table sugar (sucrose), glucose, fructose, corn syrup solids, are found as major ingredients in many processed foods, candies, carbonated drinks and pastries. Generally high protein foods, such as beef, veal, fish, poultry and eggs, are low in carbohydrates.

Are carbohydrates nutritionally important in diet?

Carbohydrate is important because it is the major source of energy in the human diet contributing approximately 40-80 per cent of our calorie needs, depending on the national diet of the country being studied. Recent estimates of energy from carbohydrate in the diet of Canadian adults indicate that approximately 40 per cent of the calories are supplied by carbohydrate. The average for children is higher at 46-50 per cent. At present the Recommended Nutrient Intakes suggest that the Canadian population should be encouraged to increase the carbohydrate content of its diet, primarily from foods with a high content of complex carbohydrates, to at least 50 per cent of the total energy value.

Is it possible to consume too little carbohydrate?

Even though carbohydrate contributes substantially to the energy value of the diet, it is very difficult to estimate a dietary requirement. Most nutrition textbooks state that carbohydrate is not an essential nutrient because we can convert the protein in our diet to glucose via a metabolic pathway known as gluconeogenesis. In the next breath, these same textbooks will state that glucose is an essential energy substrate for the central nervous system and red blood cells. We know that the brain and red blood cells utilize approximately 100-150 grams of glucose per day, some of which is provided for by gluconeogenesis from amino acids. Diets too low in carbohydrate calories result in high circulating levels of blood ketones, a metabolic state called ketosis. Ketosis is not desirable. Since ketosis can be prevented by intakes of carbohydrate of about 100 grams per day and this meets the minimum brain and red blood cell needs, this value is often quoted by nutritionists as the minimal amount of carbohydrate required in the diet.

Can humans eat a diet that is too low in carbohydrate?

There are over 20 popular diets that recommend carbohydrate intake (<60 grams) below the minimum 100 gram requirement. They include such names as Atkins' Diet Revolution, Dupont Diet, Fabulous Fructose Diet, Last Chance Diet, New York Times Natural Foods Diet, Woman Doctor's Diet for Women and the Drinking Man's Diet (see Figure 1).

Low carbohydrate diets are usually advocated by individuals who want to lose weight. While the diets cause weight loss, there are health hazards associated with carbohydrate restriction.

What are these health hazards?

Fatigue is the most common complaint. Dehydration and electrolyte imbalance may occur if the low carbohydrate intake is

prolonged. Of most concern to nutritionists is the presence of the elevated circulating blood ketone levels, particularly in pregnant women. Ketosis during pregnancy is associated with retarded intellectual development in the growing fetus.

Now to your research - why carbohydrate and pregnancy?

Carbohydrates play a critical role during pregnancy for two reasons. First, a minimum amount of carbohydrate is required to prevent the deleterious effects of ketosis. Second, carbohydrates are the principal energy source for the growing fetus and the newborn immediately after birth. It was on the basis of these two observations and the lack of published data that I chose to study the effect of low carbohydrate diets on fetal and neonatal growth and development.

You use animals as research models, not humans. Is there a reason?

When I began my investigations, I discovered only three articles in the entire research literature that monitored the effect of low carbohydrate diets during pregnancy on fetal and neonatal growth. One study looked at humans, another at rats and another at dogs. In all three studies there was evidence of intrauterine growth retardation and low birth weights. In the study with dogs, the most damning results were found. In this study, done in 1983, there was an extremely high incidence of stillbirths and postnatal mortality. I strongly felt that because of these results, it would be unethical to use humans as a research model. No human ethics review committee would want to place the pregnant women at risk of losing her child.

Furthermore, it was quite clear that there was so little data available on the effect of low carbohydrate diets during pregnancy on fetal and neonatal growth and development that basic research was clearly in order. I chose rats as my initial experimental model since they reproduce quickly and their physiological response during pregnancy is similar in many respects to humans.

What happened when you fed low carbohydrate diets to pregnant rats?

There were striking results. If the low carbohydrate diets were fed from day one of pregnancy, the rats did not deliver any live pups. If the low carbohydrate diet was begun later in the fetal development, the rats gave birth to growth-retarded pups that died within 24 to 48 hours of birth. If the low carbohydrate diets were fed only during lactation, the newborn pups nursing dams fed these low carbohydrate diets did not grow normally. We found that part of this failure to grow could be attributed to changes in the milk composition and a reduced total calorie concentration in the milk.

Is your research at Macdonald going to continue to explore the interrelationship between carbohydrate, pregnancy and fetal and neonatal development? Which carbohydrates?

Yes, my graduate students and I plan to explore several avenues. We will be studying the effect of some of the simple carbohydrates such as glucose and fructose on metabolism. We will be looking at the importance of dietary carbohydrate for exercising pregnant animals, and we want to determine how low carbohydrate diets affect milk composition.

Popular Diets Involving Low Carbohydrates (<60g/day) Intake *

Name	Year	Originator
Atkins' Diet Revolution	1972	RC Atkins
Atkins' Super Energy Diet	1977	RC Atkins
Banting Diet	1864	W Banting
Brand Name Carbo-Cal Diet	1979	DS Mart
Brand Name Carbohydrate Diet	1977	Success Publications
Calories Don't Count	1961	H Taller
Carbo-Cal Diet	1973	DS Mart
Drinking Man's Diet	1964	G Jameson, E Williams
DuPont Diet	1953	AW Pennington
Easy No Flab Diet	1979	R Passwater
Fabulous Fructose Diet	1979	JT Cooper, P Hagen
Fat Destroyer Foods	1974	S Petrie, RB Stone
Last Chance Diet	1976	R Linn, SL Stuart
Lazy Lady's Easy Diet	1969	S Petrie, RG Stone
Lose Weight-Feel Great	1974	J Yudkin
Lo Carbohydrate Diet	1965	C Fredericks
Miracle 3 Diet	1977	S Petrie, RB Stone
NY Times Natural Foods Diet	1972	YY Tarr
Quick Weight Loss Diet	1968	IM Stillman
Thin Forever Diet	1972	A Cornillot
Thinking Man's Diet	1972	E McMahon
Woman Doctor's Diet For Women	1977	B Edelstein

* For detailed explanations of these diets see Bertrand T: Rating The Diets. Signet, New York, 1979.

Bionz, E. and Stern, J. Obesity and Fad Diets in Contemporary Issues in Clinical Nutrition, Vol 2 (Leon Ellenbogen ed), Churchill Livingston, 1981.

Figure 1. There are health hazards associated with carbohydrate-reduced diets.

Fun Fact Fable Fiction

by Ralph H. Estey

Emeritus Professor, Department of Plant Science

Insect Repellent
To destroy musquetoes, take a few hot coals on a shovel or chafing dish, and burn some brown sugar in your bedrooms and parlours, and you effectively destroy the musquetoe for the night. The experiment has been tried by several of our citizens, and found to produce the desired effect. (Farmer's Almanack 1833)

Modern Luddites
Early in the nineteenth century bands of English workmen destroyed industrial machinery in the belief its use diminished employment. They were called Luddites, after Ned Ludd who is credited as the originator of the idea. A little over 100 years later, a political party in New Brunswick used a similar idea to get elected. For weeks prior to election day, newspapers carried paid cartoons of large machines working on a highway while unemployed men leaned on a fence, with idle horses standing behind them. The message was that all such machinery should be dumped into the Bay of Fundy so that the men and horses could once again be gainfully employed. Future anthropologists will not find many road machines in the Bay of Fundy, but the sponsors of the cartoons were elected. Variants of that theme appear year after year. Sometimes it is aimed at new labour saving machines, and sometimes at science in general. One reason for its persistence in modern society is its nebulous association with an enduring fable - that of the good old days.

The Eleventh Hour
The phrase "at the eleventh hour" generally means near the end or at the last minute. It comes from the Bible, Matthew, Chapter 20, in which reference is made to the labourers hired at the eleventh hour being paid as much as those who had worked in the vineyard all day. That chapter also reveals that men worked 12 hours each day and were paid one penny for their labour. Were those the good old days, or do "good old days" just go back to the youthful period of each generation?

Murder He Wrote
The biblical book of Esther tells how a beautiful virgin became queen and persuaded the king to write letters granting her kinsmen the right to kill other people. With the king's permission, they murdered more than 75,000 in a few days. In that 10 chapter book, there is no mention of God.

A New Brunswick First
In 1838 George C. Fenety, in Saint John, N.B., published the first penny newspaper in the British Empire.

A Very Sad Fact
A young trapese artist named
Bract.
Is faced with a very sad fact.
Imagine his pain.
When again and again.
He catches his wife in the act.

Wives For Sale
The sale of wives was not uncommon in Britain, until the practice began to decline in the middle of the nineteenth century. The sale usually took place in an inn or at a local market and, in general, the wives did not object to being sold. The purchasers were often financially or otherwise superior to the sellers so for the wife the sale meant a rise in social status.

Clear Entrees
Bouillon is a clear, seasoned broth flavoured with one kind of beef, chicken, etc. Consomme is a clear soup made from two or more meats or a meat and a vegetable.

World Traveller
Alexander the Great (356-323 BC) was born in Europe, died in Asia and was buried in Africa. The preparations for his funeral required nearly two years. His body was transported in an immense car, pulled by 64 white mules, from near the Euphrates River in Asia to near the Nile River in Africa.

Never Satisfied
A New Brunswick farmer sent his son to Macdonald College, and the boy came home at the end of the first term with the joyful announcement that he ranked second in his class. "Second?" said his father. "Second? Why were you not first? Don't you realize how much it's costing me to send you to that school?"

The boy returned to Mac full of determination and New Year's Resolutions concerning his studies. When his grade marks for the year reached him at home in May, he was elated to learn that he had a higher grade point average than anyone in his class. His father looked at the report, sat silently for a few moments, then shrugged and grumbled, "Well, it can't be much of a college."

Sherlock Solves Another
Sherlock: "Ah, my dear Watson, I see you've donned your long underwear."

Watson: "Amazing, old boy. How did you deduce that?"

Sherlock: "Elementary, my dear Watson. You've forgotten your pants."

Golden Age Humour
When I was a young man, I was accused of being interested in only one thing. Now I can't remember what it was.

Not Enough Food
In these times of agricultural surpluses in Canada and elsewhere it is hard to believe that even today, and for at least a hundred years, there has not been enough food produced in the world to maintain the health of all the people.

Forests Forever
The forested area of Canada is shrinking, but since about 1965 there has been a small annual increase in the forested area of the USSR. That nation, with all its political and economic shortcomings, has a reforestation plan that is designed to ensure a perpetual forest industry.

Mushroom Hunters
There are old ones and bold ones. But there are no old, bold mushroom hunters.

Seeking Solutions

Research Reports

by Dr. R.K. Stewart, Associate Dean, Research

In the last issue, I highlighted a department which dealt with "bugs" so now it seems appropriate to introduce another group dealing with different kinds of "bugs". The Department of Microbiology shares the top floor of the Macdonald Stewart Building with the Department of Entomology as well as a reputation for wide ranging research interests within their own discipline.

Dr. Roger Knowles, Chairman of the Department, is studying the microbes which control the availability of nitrogenous nutrients for crops as well as those which affect the ultimate fate of nitrogenous pollutants which find their way into rivers and lakes. Some bacteria provide nitrogen by "fixing" nitrogen gas from the air but there are others which cause losses of nitrogen to the atmosphere in the form of nitrous oxide (laughing gas) and gaseous nitrogen - which is actually no laughing matter.

Dr. Robert MacLeod, Emeritus Professor, is continuing his studies on the comparative biochemistry and physiology of marine and terrestrial bacteria. His studies have shown that marine bacteria possess systems for transporting nutrients into the cells across the cell membrane which require sodium to function. In this respect they are similar to animal cells and distinct from most terrestrial bacteria. He and his research group have succeeded in cloning a sodium-dependent transport system from a marine bacterium and plan to study its mechanism of action. Such studies will lead to a better understanding of how cells take up compounds from their environment and could lead to better ways to control the growth and activity of all types of cells.

The research in Dr. Duane Martindale's laboratory is directed towards understanding how genes from single-celled animals (Protozoans) function. Protozoans are a large and diverse group of organisms and many of them are associated with animal and human disease. Research into how their genes are organized and controlled have led to some surprises that have wide-ranging implications in both basic and applied biology. The particular genes that Dr. Martindale's group are examining are active during the sexual cycle of the protozoan that they are using as a "model" organism (*Tetrahymena thermophila*, aciliate). They believe this research will lead to a better understanding of how genes are organized and controlled in protozoans and give insight into a process it shares in common with higher organisms (meiosis).

Dr. Don Niven is interested in the biochemistry and physiology of bacteria that cause pneumonia in swine. One of the organisms being investigated is the causative agent of porcine *Haemophilus pleuropneumonia*, a disease of major concern in Quebec and elsewhere. Interest is now turning to the effect of nutrient deprivation on antigen expression by the organisms; expression of the "right" antigens, capable of inducing a protective antibody response in animals, could lead to improved vaccines.

Dr. Karl Tibelius is fascinated by the key roles bacteria play in the cycling of nutrients in our environment. This has led him into the field of biotechnology and research on the genetics and physiology of bacteria involved in soil nitrogen transformations which directly or indirectly affect plant growth. His current studies focus on the genetics of nitrogen-fixing bacteria and the possibility of "engineering" more energy-efficient strains for use as inoculants to increase crop yields.

Dr. Edmund Idziak is studying the initial events in bacterial attachment and growth on beef. Although a basic study, the results, it is hoped, will lead to methods to prevent attachment and colonization of bacteria on meat and therefore extend the shelf life. A second aspect of his research involves the use of harmless organisms as food inoculants to prevent the growth of pathogenic organisms, thereby reducing the risk of food poisoning. Based on his interests in food and public health safety he also assists organizations (national and international) in developing quality assurance programs to ensure quality and safe foods for the public.

Dr. Jordan Ingram is optimizing conditions for the production of biosurfactant compounds produced by *Pseudomonas* species. These compounds, which themselves are bio-degradable, aid in the biological degradation of hydrophopic substances such as oil products, pesticides and polychlorobiphenyls by other microorganisms. Studies are also in progress to isolate an enzyme or enzyme-system which will inactivate trichothecene mycotoxins, the very toxic secondary metabolites produced by some fungal species responsible for spoiled rice or corn grains.

Altogether a versatile group, the microbiologists, although small in number, cut a wide swath in their research activities as well as serving an increasing number of undergraduate students.

Campus Life

Two Firsts for the CFSEA Junior Branch

by Hazel M. Clarke

Bursary Night

Each year the senior members of the Montreal branch of the Canadian Food Services Executive Association (CFSEA) present bursaries to their junior branches in the area: l'Institut de tourisme et hôtelier du Québec and Macdonald College. Maisonneuve College is in the process of becoming a fully qualified branch. The bursaries are presented at a dinner which is usually held at a downtown Montreal hotel or restaurant. Last fall the Macdonald branch asked if they could host the event, which was held on October 22, in the Macdonald-Stewart Building.

Sylvie Renaud, a third-year Dietetics Major from Beloeil, and Beatrice Martin, from Ste. Thérèse, Laval, were in charge of the evening. With a staff advisor, the students did all the budgeting, purchasing, and preparation for the event. Green and gold were the colours chosen and, being fall, the students decorated with leaves and used pumpkins for the fruit salad. The dinner was buffet style with such dishes as spare ribs with kiwi sauce, zucchini quiche, salmon mousse, and a variety of salads.

Sixty-eight people attended the bursary night evening: most were senior executives in food industries plus invited guests from the School of Dietetics and Human Nutrition. Shannon Morelli, a teacher at LaSalle College, was the guest speaker. She spoke on "Magic in Menu Marketing." She talked about using pictures to demonstrate what is on the menu. Instead of printing "cottage cheese salad plate," have a photo.

Bursaries valued at $275 each were given out to students from ITHQ and from Macdonald. Two bursaries were also presented to students from Maisonneuve College.

Dietetics Up Front

The second of the first time ever events put on by the CFSEA Junior Branch at Macdonald was a panel discussion by five young professional dietitians who have chosen careers in fields as diverse as clinical dietetics in a large hospital to being the only dietitian for Mike's Restaurants. The trials and tribulations of what seemed like tons of applications and even more tons of refusals in the search for a suitable position after graduation was a common theme. First jobs for most were as replacements for vacationers, maternity leave, casual assignments, or special projects. Each told her

Macdonald students receiving bursaries were, l to r, Marie-Josée Campbell, Sylvie Renaud, Julie Handfield, and France Ann Dumais.

Preparing the food in the School's kitchen were, l to r, Mehrnaz Shariatpanahi, Catherine Mongeau, Diane Bertrand, Catherine Coulombe, and Manon Paradis.

story with humour and each is very pleased with the position she now has. From their discussions on February 2, 1987, here are five career profiles of recent graduates from Macdonald College, Dietetics Major.

Gilda Bastasi, BSc (FSc) '79

Gilda recalled that she was in the first graduating class in the new integrated program. She did two of her Stages, and worked for a summer, at the Lakeshore General Hospital. Her first job was as a casual dietitian in the Montreal General Hospital, which she found good experience as she was on nearly every ward on every floor. Next was work at a diet clinic and at the outpatient unit at the Montreal General. While there she became particularly involved in working with patients with diabetes; she helped develop a teaching program for adult diabetics and an evening course for young people which included a social worker, a nurse, a doctor and herself. Gilda joined the Professional Health Workers section of the Canadian Diabetes Association and became the regional representative for Quebec. While in that position the national meeting of the association (with a membership of over 1,200) was held in Quebec and Gilda found this a most challenging experience. "And," she added, "the conference was a success!"

Owing to cutbacks at the General, Gilda had to leave her work with diabetics and now works on the wards as well as in the general outpatient centre. After six years in diabetes care, she finds there is an adjustment to make but hopes to be able to adapt quickly to her new work with throat cancer and cardiac patients.

"The love of working with diabetes will always be with me," she said. "If there is one particular aspects of dietetics that you prefer, I encourage you to 'go for it' as you will find it rewarding."

Sylvie Gauthier, BSc (FSc) '80

"Salad, fruit, and juice; salad, fruit, and juice; salad, fruit, and juice!" Sylvie told her audience that she spent one summer working the night shift on an assembly line, but she appreciated the opportunity of seeing how one aspect of the food industry works and, she added, "I got a scholarship from that company the next year." She also spent a summer at the Royal Victoria Hospital, then worked there as a clinical dietitian for three years and gained good experience. "I was on all the wards - everything from obstetrics to geriatrics."

Sylvie decided she did not want a conventional job and went next to Mead Johnson as a nutritional products representative. She enjoyed the work and the people she met, took courses in sales, and started a diploma in marketing to help her in her work. Sylvie's next move was to Ross Laboratories where she is now working. What does it take to be a good representative? "You must go to all the CDA and other meetings in order to keep up-to-date. You must be organized and be able to plan far ahead. You must be a self-starter and be able to look after a budget. You must be motivated. You have to know your product and that of the competition. You have to communicate your enthusiasm for the product. You have to go to pharmacies, take inventories, and do stock rotations. And," Sylvie pointed out, "as I worked in a hospital and know some of the problems doctors and dietitians are facing, I can make suggestions to them." To sum up her position, Sylvie said, "You have to enjoy your job if you are going to do it well." There are now five dietitians working in pharmaceuticals in Quebec.

Carole Fournier, BSc (FSc) '80

Carole tried a variety of different positions in various parts of Canada before deciding on her present job which she is very proud of. She had a food service supervisor job at the Royal Victoria Hospital and then heard about a pregnancy leave position in Chibougamau. Next Carole went to a hospital in Carbonnear, Newfoundland. "As a student I planned to work one or two years in a hospital to review everything I had learned. I was the only dietitian in the hospital and got involved in everything. As the only dietitian, and therefore the authority on nutrition, I was treated with respect. I was there about a year and a half and I called myself the world's happiest dietitian." Carole went to Chicoutimi where she taught for a short period, and she also worked for the Ministry of Agriculture at EXPO Quebec where she talked about fruit and vegetables. Next came the Magic Pan Restaurant - a chain of restaurants that started in San Francisco. "I loved the job and worked 10 to 12 hours a day. I enjoyed merchandizing and working on marketing ideas. We worked on special menus and menus for special occasions such as Mother's Day. I have made yet another change and am now with La Cantinière, a 14-year-old company. The owners were both canteen drivers who decided to get together and build a company supplying canteens all over the island. I started by working on product development, but I now concentrate on quality control and sanitation. I am also responsible for the listing of ingredients on labels which can be very complicated. As I said at the start I am thoroughly enjoying my job and am proud of it."

Hélène Trudel, BSc (FSc) '82

Hélène also tried several different positions before settling on the one she now has. As a student she worked part time at the Montreal Neurologicial Hospital (MNH) and at the Jewish General. She went back to the MNH, did special projects for a school board and worked on a menu for a seniors' home. All good experience. Next was menu co-ordinator for The Bay Food Services, which meant working in product development, quality control, sanitation, safety, and food costing. She was promoted to Assistant Manager downtown region.

"It was great experience learning to manage people at the age of 21," Hélène recalled. "After a while they realize that you know what you are talking about." Hélène moved to Ottawa and got a job as menu coordinator with the Bay in the Ottawa region. Menu development, design of menus plus being in charge of supervisors. Next she was with Agriculture Canada as an experimental food consultant, which was mostly working in the food lab doing consumer evaluations of foods and testing new agricultural products. " Interesting work but I decided that was not my line of work as I am a more action type of person.

"Then I heard about Mike's Restaurants which started in 1969 by Mike and his brother." Hélène said that the first restaurant was in the Rosemount area of Montreal, and then it grew and there are now 80 franchises across Quebec. The original menu was hearty and inexpensive - 15 kinds of Mike's submarines. The brothers sold it as a chain and new owners started making changes. They began to standardize the recipes, the restaurants have been renovated and have become quite a successful family restaurant chain.

"My job title is manager of product development," Hélène said. "I was hired to make the menu a little more diverse." She works with the H.J. Heinz Company and they developed Mike's pizza sauce. Mike's has private labels. They tested sauces with different varieties of tomatoes and finally chose one they liked. The whole production for one year - 15 thousand cans of sauce - was produced by Heinz in Leamington, Ontario, in exactly 36 hours. Hélène worked on a new dessert menu. She hopes to have a test kitchen soon and would like to start a training school.

"We are working on sanitation programs, safety programs, and recipe testing because we are still standardizing our purchasing, which I also do. And," Hélène continued, "I do taste tests and work on the computer finding out how our sales are, what we sell the most of, and I am setting up a food costing system. I am also working on a recipe manual and designing plastic recipe cards to put at the work stations. I'm thoroughly enjoying my work," Hélène concluded. "When you look for a job, have a goal in mind and be prepared to re-evaluate your goals as you go along."

Chantal Caty, BSc (FSc) '82

Chantal briefly recalled her summer jobs and her work before starting up her own private practice as a counsellor. "I was a pioneer as a clinical dietitian in private practice as few were doing this type of work." Chantal said her first task was to decide where to set up her office. She had to research the population of various areas to find what she wanted - women between the ages of 25 and 60. She chose Ahuntsic. "Your own business means long 10 to 12 hour days; you have to do your own administration, your own accounting, your own advertising."

Chantal has read a great deal on obesity, which helps her to understand those clients who have weight problems. She keeps in close touch with doctors and they refer people to her and give her their medical data. She in turn sends them reports of what she is doing with a patient. Clients also refer her to friends. She now has about 140 patients. "I develop recipes and," she pointed out, "I have to remember that the recipes have to be appetizing. As I am dealing with the public, I have to be human and understanding. You just can't give out diets. This is a new experience for the client." If possible, Chantal likes to deal with the whole family. She said you have to bring a person to her goal, which is not always easy and can take time, and then keep the person at that goal.

As well as obesity, Chantal works with people who are having problems with cholesterol or diverticulitis, for example, and she thoroughly enjoys working with pregnant women and following them through their pregnancy.

Chantal hopes to hire some dietitians as she enjoys team work. She summed her practice up by saying, "I enjoy the challenge."

Sylvie Renaud told me that the CFSEA had 85 members at Macdonald this year, which was a record. Apart from the bursary night and the panel discussion, they toured food industries, attended meetings with the senior branch, organized a successful blood-drive, printed their own newsletter, had several fund-raising events, and kept a photo album to be judged at the national level.

Dietetics Up Front speakers, l to r, Sylvie Gauthier, panel chairman Beatrice Martin, Hélène Trudel, Gilda Bastasi, Carole Fournier, and Chantal Caty.

Campus Life

Founder's Day Cake

To celebrate the 156th anniversary of Sir William Macdonald's birth a birthday party was held in the foyer of the Macdonald Stewart Building on February 10, 1987. Founder's Day had also been celebrated during the official opening of the new cattle facilities. The "24-Carat" Cake was prepared by students in the School of Dietetics and Human Nutrition under the supervision of Blanche Olejnik, who told us that the 7-foot cake was made from 5 batches of the cake recipe and the 10 sheets of cake were placed on a 2 1/2 by 7-foot plywood sheet. The cake was then iced with 2 batches of cream cheese icing. It was cut into 500 portions! The following recipe may come in handy when you have an extra large birthday party! However, Mrs. Olejnik reminded us that some recipes, developed for preparation in large quantities, do not adapt readily to household use and vice versa. Changes need to be made in proportions for differences in amounts and the methods used. If one has access to oven space and mixing equipment sufficiently large enough to accommodate preparation and yield, fine. Readers, however, should be aware of the volumes with which they will eventually be dealing. Mrs. Olejnik said that they started from a recipe developed by the California Prune Advisory Board.

"24-Carat" Cake

Measure	Weight	
	700 g	sugar
	1 kg	buckwheat honey
	700 g	shortening
1 L	16	eggs
	1.6 kg	all purpose flour
40 mL	32 g	baking powder
40 mL	35 g	baking soda
30 mL	36 g	salt
60 mL	48 g	cinnamon
3 L	2.0 kg	raw carrots, peeled and grated
	1.4 kg	raisins
	250 g	sunflower seeds and chopped walnuts

Five of the students who helped to say "Happy Birthday Sir William," l to r, Nathalie Issa, Carole Coulombe, Chantal Therrien, Annette Vezina, and Louise Ayton.

Cream shortening, honey, and sugar until fluffy in mixer bowl.

Add eggs and beat thoroughly.

Mix flour, baking powder, baking soda, salt, and cinnamon and add to first mixture, mixing well.

Fold in carrots, raisins and walnuts.

Turn into 2 greased 15 by 21 by 1-inch cake pans lined with 2 25 by 12-inch pieces of aluminum foil. One inch overhang on ends and sides.

Bake in preheated 350 degrees F oven for 30 to 40 minutes or until cake tests done.

Cool and refrigerate or freeze until needed.

Arrange cakes on aluminum covered sheet. Ice and decorate with Cream Cheese Frosting (recipe follow).

Note: Icing and decorating is made easier if a thin layer of icing is applied before cake is chilled or frozen. Final icing and decorating can be done just before serving.

Cream Cheese Frosting

3600 kg	cream cheese
500 mL	4% milk
6.4 kg	icing sugar
120 mL	vanilla

Blend cream cheese and milk until smooth in mixer at medium speed.

Add sugar gradually. Whip at high speed until smooth.

Add vanilla and blend.

Make 5 batches of the cake, 2 batches of the icing, bake, decorate, and serve 500!

Note: Icing and decorating for 500 takes time.

Diploma Corner

Common Sense and Technical Know-How

by Hazel M. Clarke

It was still early in the morning but as the heat from the mid-March sun warmed the interior of the Diploma truck Professor Elliot Block, from the Department of Animal Science, and I were concerned that we might get to the Benallen Farm just outside of Lachute and find the men, who had already started putting in taps, ready to head for the sugarbush. If that were the case, the interview with Jim Hammond, Dip '83, and his family would have had to be brief but, as it turned out, there was still too much of a nip in the air and the men had time to give us a tour of the barns, the office where a good deal of Jim's time is spent at his computer, and then, with Jim's mother Frances passing around mid-morning refreshments, we got our leisurely interview.

After graduation, Jim Hammond, Dip '83, returned home to Benallan Farms near Lachute.

When he graduated, Jim joined his father Allan and his brother Ben on their purebred Ayrshire farm. The farm has been in the family since 1921 when Allen's father bought it. Allen took it over in 1964 but in 1969 the land was expropriated for Mirabel airport.

"There were 89 thousand acres (36000 hectares) expropriated," Allan Hammond told us. "Many of the farmers were at an age when they couldn't see a future for them on the land and they left. About four different farms are now part of ours. We stayed on and rented and, finally, in December 1986 we were able to buy the farm back."

With a young family to raise, Frances Hammond found that 15-year period a very difficult time. "At the beginning, we didn't know whether to leave or to rent. Allan's plans for the farm were shelved and, not knowing that we might be able to buy the farm back, there was no incentive to make any improvements."

With the Mirabel expropriation now a thing of the past,there are still two other problems facing the Hammonds and other farmers in the immediate area: urban expansion and road development. They are losing some of their land for a road that will go right through from Hull to Mirabel airport. With a shopping mall right next door to them, houses being built nearby at a rapid rate, and a golf course across the way, complaints about odour have become a problem, particularly in the fall when manure is being spread. Elliot Block mentioned a similar problem at Macdonald, with one solution being liquid manure that may be spread using an irrigation system.

Despite these problems, Allan and his sons are looking forward to an even larger set-up than they now have. Including the land that they rent, they have about 370 hectares with 260 workable. The herd numbers some 160 head and they milk between 55 and 60. The production average is about 6,500 kilograms per cow per year. Butter fat is 4.1 to 4.2, and the BCA is 169.

It was obvious that the two brothers work well together and each respects the other's knowledge and ability. Ben applied to various colleges and universities, including Macdonald, and was accepted, but he decided he would rather learn by experience. His father also pointed out that he suffered a heart attack about the same time that Ben was making a decision and his help at home was certainly appreciated. Ben admits that a college education is an asset but "feels that the most important quality on a farm is common sense."

Jim, on the other hand, thinks his time in the Diploma Program was of great help. "There are things you learn in college that help you break away from the traditional route," Jim said, "I originally thought I would like to go into the RCMP but my feelings changed at Macdonald. I particularly appreciate the fact that Stuart Bowman got me really interested in dairy cattle. His courses and Henry Garino's in feeding and Marcel Couture's in farm business management all made me realize that I wanted to come back to the farm. When I finished

the Dip course I knew it was time to get back into the routine, learn how things were being done and then try and put some of the things I had learned into use. My only regret was that I didn't go through Mac a year or two later when there was more emphasis being placed on computer technology."

That fact didn't stop Jim from getting a computer though. "I got a computer in March 1984 and I started the total mixed ration a year ago and production went up 20 points last year. In the past few years it has gone up over 40 points."

Jim told Elliot that they also feed hay to the second and third group of cows and if the first group doesn't eat all that is in the manger, they too get some for the rumen. "As there is so much fibre in the total mixed ration, we don't really need it. We are feeding Distiller's and canola as supplements. We use biophos and trace mineral salt for minerals. I go with Nutrimix," Jim continued, "because I find it has everything we need, it has an alfalfa base, and I think it is cheaper than some others."

Professor Block told Jim that the key to good management is to build slowly. "Your first big change was when you put in your new ration. That's when you saw the biggest jump. Small things here and there will keep you going up." He said that although there may be some benefits from using commercial mixes, they are expensive. He felt the Hammonds were getting good value from their own mix. "There are small things that you can do as you get accustomed to the total mixed ration concept," he said, "that will push your BCA up. Eventually you will be mixing a ration just as fast as you can use a commercial mix! Haylage and corn -- that's your base. You can also feed supplement and you will see a big difference if you start putting in 18 to 20 per cent haylage - 18 per cent is probably ideal. Roasted soybeans make sense because you don't have much to feed, possibly 4 per cent of the total ration for the high producers and for the medium to low producers you can use a canola supplement which is cheaper. It will cost you a few cents more per litre of milk to use soy beans," he explained.

Professor Elliot Block, l, gets a tour of the purebred Ayrshire herd from Allan Hammond and his sons Ben and Jim.

Jim said that it now cost $3.75 per cow per day or 15 cents per litre, which he felt was not too expensive. "Of course," he said, "it depends on what you charge yourself for haylage. We put ours at $65 a ton, which may be higher than most, and we use the market price for corn - it was $90 last year." Jim pointed out that they have not gone with more feeds because they only have one bulk silo. The rest is done in bags which is extra labour.

Although all three men help each other, chores are divided with Ben looking after the crops, the machinery and the cattle breeding, Jim the feeding and milking, and their father the finances. "Ben helps with the milking, but I look after the barn," Jim pointed out, "and I'm starting to do some of the book work, too."

Frances told us that her husband had been laid up all winter with a knee problem. "I think he went to the barn twice in 2 1/2 months. He left everything up to the boys and I think this was an excellent test for them."

When Ben asked if they passed the test, his dad's noncommital reply of "time will tell" was coupled with a twinkle in his eye and a smile in his voice.

Ben said that they grow everything they need except the concentrate and that there is usually surplus corn and barley that they sell. "We now have a drier and will be able to use it this year," he said. "We have 130 hectares in corn, 30 in barley, and 80 in alfalfa. The balance of the land is in pasture." The Hammonds have their own combine, and Ben combines for others when it fits in with his own schedule on the farm. As well, they have about 1,500 taps and rent another 2,000 to a neighbour. "We do our sugarbush because it is there," Jim pointed out. "We are not depending upon it for income. We sell most of the syrup here at the house and the rest is sold in bulk." The Hammonds were expecting to get a good price for their syrup this year.

Ben is in charge of the cattle breeding. They only use AI, and as Ben took a course last year, mainly to learn more about heat detection, he is the technician on the farm and he is very pleased with the results. "We do use bulls from other units but we mostly use St-Hyacinthe as they have the best Ayrshire bulls," he said. "Our breeding rate has gone up and our investment after one year of doing the job right has paid off. We try for 50 days. If we don't succeed we have them by 70 days and if we don't see a heat after 70 days, we'll synchronize them."

At present the Hammonds have their heifers in another barn a short distance from the home place. Jim said that their goal is to have all their animals under one roof. They would like to be able to watch the heifers and to feed everything on total mixed ration which would let them grow a lot faster and better. "Our problem," Ben said, "is that with our production going up, our stalls are too small. We either have to remodel this barn or keep it for the heifers and dry cows and build a new one. We are trying to decide which would be the most economical."

Although Jim admits to not being too excited about having to feed outside in winter, he said that the calf hutches the family are using are very satisfactory. "As the barn is airy enough in the summer, we have only used them in the winter time. We put the calves out within 24 hours of calving or as soon as they have dried off. Right now there are storm doors to keep the snow away from the front of the hutches, and the calves can get out for fresh air. We would like to build fences around each hutch for next winter. We keep them out there for four weeks. They don't get any water during that time, and then we wean them off milk and onto water and grain. The grain is offered to them one week after birth. They get good hay 50-50 alfalfa and grass - as soon as they come into the barn."

Professor Block said that he has found calves do better on grass than on alfalfa. They don't bloat and they eat more. A good timothy hay with about 10 per cent protein is ideal.

Ben and Jim are going to form a partnership. At the moment the boys are working for their father, but he wants them to have land of their own and will help them with quota, cattle, and machinery for the next few years. "We are trying to make the transition as smooth as possible," he said.

Jim has been back to Macdonald a few times but, being a recent grad, he and his fellow classmates have not as yet held a reunion, although he does see some of them from time to time. Jim was a member of the Woodsmen team and played basketball while he was at Mac and also took part in the Livestock Show. "I was reserve champion in the Ayrshire class the first year and came in last the second year," he recalled with a grin. Jim was a director of the Lachute QYF for a couple of years and both brothers were active in the local 4-H and are now on the Lachute Fair Board Committee. Ben is also Vice-President of the local Ayrshire Club. Jim gets out to as many field days as time will allow and enjoys some downhill skiing. Ben also skis, plays hockey, and enjoys taking part in plowing matches. He was Junior Champion at the Plowing Match held in Chilliwack, B.C., in 1981.

Frances Hammond is also a Mac graduate - - BSc (HEc '53) - and she too, comes back to Macdonald as often as she can both for class reunions and as a member of the Jerusalem-Bethany branch of the Women's Institutes. Two sisters make up the rest of the family: Susan, who is taking hotel and food management at Guelph, and Marjorie, who is a legal secretary in Ottawa.

Back out in the yard the warmth from the sun was still in the air and, as it does every spring, it brings with it renewed optimism for the year ahead. With the enthusiasm of youth, the knowledge gained from education and experience, and the support from the parents, we could only see a promising future ahead for the Hammond family and for the farm that they can once again call their own.

My thanks to the Hammonds and to the very busy Professor Block for their help with this article.

In the farm office Jim explains his computer set-up to Elliot Block.

QWI

EXECUTIVE CORNER

A Provincial Quilt Information Booklet

Quilts and quilt making are a part of our heritage. This suggested project of the FWIC for the 1985-88 triennium will be a means of preserving quilt information and, in a small way, part of our history.

This booklet will catalogue quilts that have been made or are owned by Women's Institute members and that are now possibly on display to the public. (As in museums or other public buildings.)

Type of booklet - A ring binder with page 8-1/2" x 11", preferably plastic covered pages.

The booklet would be kept in the province. Duplicate copies of the pages would be forwarded to me to make a complete book of Canadian WI quilts and quilting information.

Information could include:

1. A list of collections within the province, stating (a) the names of the quilts and (b) where they are displayed.

2. A story of the individual quilts or patterns, accompanied with a picture, if possible.

3. A list of WI books on quilting or of patterns stating: (a) by whom they are complied and (b) if they are available for loan or sale and how.

4. A list of any slide presentations giving the same information as for the books.

Original information for the province should be sent by **January 31, 1988** to: Mrs. June Kelly, Education and Cultural Affairs Convener, 74 Pointe Claire Avenue, Pointe Claire, Que. H9X 4M5.

The duplicate pages should be sent to me at the address below by **March 1, 1988**: Gwen Parker, Chairman of Education and Cultural Activities, 5640 chemin North Hatley, Rock Forest, Quebec, J1N 1A4.

Birth of a Branch

With considerable interest being shown in joining the Women's Institute by women living in the mid West Island area and with an ever increasing problem of transportation to Lachine, the home base of the West Island branch, the decision was made to call a meeting in Beaconsfield on March 11, 1987, to see if there would be sufficient interest in forming a new branch of the Women's Institutes in Baldwin Cartier County. There were 14 women present and 13 decided to join the new Lakeshore Women's Insitute. Of these six are transferring from the Lachine branch.

County President and the new Lakeshore branch President Jean Merrifield is delighted with the response and said that the branch would promote the aims of the WI whilst furthering the interests of women in a changing society. Until they find a permanent location in which to holding meetings they will gather in each other's homes. They will welcome more new members and hope to work on County projects with West Island. Jean Merrifield is President, Brenda Wallace is Secretary, and Barbara Smith, Treasurer. All good wishes to the new QWI branch, Lakeshore.

Compton County Bursaries

Six Champlain CEGEP students, all graduates of Alexander Galt, have been awarded bursaries of $150 by the Compton County WI.

Randi Heatherington from East Angus won the Hon. C.D. French Memorial Bursary. She is studying Literature and Languages at Champlain and hopes to become a teacher. The Compton County Women's Institute Bursaries were won by the following: Timothy Goddard of Cookshire and Richard Cairns of St. Isidore d'Auckland, both of whom are enrolled in Pure and Applied Science. Holly Gillam from Eaton Corner is in the Social Science program and is specializing in languages. Darlene Kerr of Bury is studying Special Care Counselling and Nick Fitzsimmons, also of Bury, is enrolled in Commerce.

The Compton County WI is proud of its service to the youth of this county. For 35 years we have been presenting scholarships

Presentation of Abbie Pritchard throw to Frances Taylor: l to r, Janice Soutiere, Frances Taylor, Nellie Cooper, president; Ruth Putney, treasurer of Stanstead North WI Branch. Mrs. Taylor has been "Institute" for most of her adult life. As a young farm housewife she first joined the Tomifobia Branch. Later, a widow, she accepted the position of secretary at the QWI office at Macdonald College, later going to Ottawa where she was employed as secretary of FWIC. Following retirement she came to Lennoxville and joined the Branch there; a few years ago she came to the Stevens Home in Rock Island and joined Stanstead North Branch. Her expertise is often sought, for at the age of over 90 years her mind is keen. We all hope she will live many more years in good health to enjoy her throw.

to deserving students. In all a total of 94 bursaries have been awarded. We are happy to extend congratulations to the 1986 winners and wish them every success in the studies and careers that lie ahead.

Condensed Milk

1	cup	powdered skim milk
1/3	cup	boiling water
3	T	melted butter
2/3	cup	white sugar

Blend until partially thickened (consistency of condensed milk). Use in any recipe calling for sweetened condensed milk. It is just as good, much cheaper, and always on hand.

IN STITCHES

by M. Elizabeth Jennaway-Eaman
Faculty of Education

Weaving was one the earliest methods of fabric construction known to man. The Egyptian civilization left us examples of linen fabric so fine that even the most sophisticated machinery of today cannot reproduce the same thread count (500 threads per square inch). For comparison fine percale sheets have 180 threads per square inch. Once a loom was a necessity in every pioneer home. Spinning and weaving were necessary chores if one wanted new fabrics. Now they are absorbing hobbies which need not involve an expensive outlay.

Just as a musician can produce marvellous melodies from sheet music, the weaver uses different colours, textures, and yarns to transfer a weaving draft or blueprint into a unique fabric. All woven fabric is based on a system of tightly stretching a series of parallel threads (the warp) and then passing loose threads (the weft or filling) over and under the stretched threads at right angles.

Although a loom is needed, it could be a simple one constructed from four canvas stretcher bars found at an art supply store with nails placed at each end, to anchor the warp yarns. Another inexpensive idea is to create a shaped cardboard loom, with evenly spaced notches to hold the warp yarns. Alternatively it could be a table model, or a multi harnessed floor loom, which would take much more space but would provide greater flexibility in choice of weaves.

There are an enormous number of weave variations which can be produced, but they are all created from three basic weaves: plain weave (tabby), twill weave, and satin weave. Choice of warp and weft yarns add another exciting dimension.

The weaving technique is used in basket-making, Rya rug knotting, lace weaves, and many other applications. An excellent way to start is to try needle weaving, or tapestry work, as these are the easiest and probably the oldest weaving methods. Using a tapestry needle, or a bodkin as a weft carrier, working on a simple loom enables a weaver to try out a design. The weft can be beaten down with a widely spaced hair comb, or even a fork.

SAFETY FIRST

by Anne Robertson

Safe motoring At the end of winter most of us check our exhaust system in our cars (salt can corrode the muffler and pipes), change our snow tires, and check the front end for damage from pot-holes, but if we are planning a long trip, there are a few more checks to make to be sure of a safe and trouble-free holiday.

A complete tune-up is recommended. Check the oil. It should be changed every 7-10,000 km with a new car. Oil, in an older car, will need to be changed and then topped up more frequently. Running with dirty oil is like a jogger with a stone in his shoe it hurts the performer! Make sure transmission, coolant and differential oil levels are correct. Check the brakes and the level of the brake fluid and the brake linings. Change worn tires and have the wheels balanced if tires are worn on one side. Follow the manufacturer's pressure recommendations.

A safe car is not enough. Learn to be a safe driver. Buckle-up, back and front, and be sure small children and babies are in proper car seats.

When driving in unfamiliar areas, drive extra carefully. Keep to the limits. Slow down on wet roads, especially after a long dry spell. Unseen oil spray makes the road very slippery with the first shower of rain.

Don't drive when tired. Have plenty of rest stops and eat lightly. If travelling with pets or children, frequent stops are necessary to allow them to run and get rid of some excess energy. Plan some activities for the children. Take games, crayons, paper and books. A few ideas: count cars from other provinces or states, play "I spy."

Remember: drinking and driving don't mix! Have a safe and happy holidays!

Mrs Gladys Holmes was presented with an Abbie Pritchard throw by Mrs. Lois Cooper of the Ayer's Cliff WI. Mrs. Holmes is an active and faithful member, and we are honoured to have this outstanding lady with us.

WITH THE BRANCHES

ARGENTEUIL: Arundel had as a guest speaker, Mr. Norman Graham, who spoke on the news from the municipal office and of the pros and cons from the council of which he is a councillor and answered questions pertaining to the council laws and regulations. Brownsburg had a Coffee Party in November and donated all occasion Christmas cards for use by the Sunshine and Cheer Convener. Dalesville-Louisa members had an enjoyable tour through the publishing premises of the newspaper "Watchman." From start to finish they were guided by editor Marge Camus and her assistant Rae Cooper. Frontier welcomed speaker, Mrs. Filion, who spoke on the work of Home Care Services. Grenville heard from guest speaker, Jim Hocquard of Hocquard, Liddycoat and Associates Insurance. Jerusalem-Bethany Mr. and Mrs. Stuart Armstrong showed slides of local Quebec. Lakefield are taking clothing to the home for the battered women. Pioneer learned of a new nontoxic fruit perservative called Nutri-Save;" this product is manufactured in Nova Scotia from lobster shells and has been cleared by the federal government for use on apples and pears and is intended for the juice and pie processing industries. Mrs. J. Leggitt, Citizenship and Legislation Convener, opened her subject "Immigration" with a song by John Whitaker (Canada), the words of which are calling out to the oppressed to come to the land of opportunity and freedom, in much the same way as our ancestors heard the call to the new world to escape the hardships and oppressions of the old world. Canada - a country built by immigrants - many of whom came to the new world destitute, and suffering rejection and isolation because of their language and appearance, but they struggled on and soon overcame these barriers to become accepted and respected citizens. Immigrants bring new cultures, foods, languages, and religions to our country, all of which tend to enrich our way of life. Upper Lachute (East End) made donations to the Orange and Protestant Home for Christmas and sent Christmas cards and newsletters to former members and shut-ins.

BONAVENTURE: one branch is supporting a foster child and several branches contributed to a community fund raising event to give financial help to the family of a leukemia victim who must move to Montreal while the six year old patient undergoes a bone marrow transplant from her six-month old baby sister ($4,620 was raised at a pot luck supper and dance held at the legion).

BROME: Abercorn heard an article on the ACWW conference held in Denmark in 1950. The aims were to educate the third world and to feed the hungry. Also enjoyed a trip to Morrisville, Vermont, to shop and dine and were able to take in a museum and handicraft shop. Austin invited members from the Fordyce branch to their October meeting. After a hot meal they were taken for a visit to the Monastery in Austin. South Bolton had a memorable reunion on October 19, as the South Bolton WI Hall was formerly a school, students and teachers of that school were invited to enjoy a luncheon and speak of old times. A number of them had not seen one another for many years and it was a delight to be reunited. Sutton gave a donation to the Canadian Bible Society in memory of Ruby Knights. It is with great sadness that we said farewell to Ruby Knights who passed away on October 29, 1986. She had been a life long member of the Olevet Baptist Church where she had been appointed organist in 1931. She was also the President and Secretary-Treasurer for many years for the Mission Circle of the Church. Ruby had been a 25-year-member of the Sutton WI and had held many positions within the WI on both the Branch, County and Provincial levels. At the time of her passing she was Publicity Convener for the Sutton Branch and County Secretary for Brome. Ruby had been an avid button collector and spoke about her collection at many WI events. On these occasions, Ruby wore the button decorated jacket, skirt, and hat that she had made. As a devoted wife, mother, and grandmother, she will be sorely missed. Her home had always been open to family and friends.

COMPTON: WI signs were sold to members to display in suitable places in their homes; one branch had made them. Two branches held a Card Party and Supper, proceeds were used to renew curtains and other necessities in a local senior citizen home. Some members attended a meeting of the local QFA, the speaker was Giselle Ireland from "Farm Women of Ontario." One branch served dinner to the men of the community who were installing a new fence around the cemetery.

GATINEAU: Aylmer east received a visitor from Michigan, U.S.A. Wright had two members speak of their trip to New Zealand and Australia.

MEGANTIC: Inverness Mildred Robinson presented a list of interesting gardening tips which had been written out for her by her mother from a WI meeting many years ago: Plant 4 rows of P's: presence, promptness, perserverance and purity. Plant 3 rows of squash: gossip, criticism, indifference. Plant 5 rows of lettuce: let us be faithful to duty, let us be unselfish and loyal, let us be true to our own obligations, let us obey rules and regulations, let us love one another. No garden is complete without turnips so: turn up for the meeting, turn up with a smile. Kinnear's Mills were pleased to welcome David Gutsnick of CBC Quebec, who had travelled from Quebec City to meet the WI group. David brought greetings and stated that they were brave and dedicated women to be out on a stormy night. He told of his work at the CBC and asked advice on how they could make changes to the programs. He interviewed each member on the work of the WI; these interviews were aired on February 25, 1987, on Quebec AM.

MISSISQUOI: When love and skill work together-expect a miracle. Several members motored to Charlotte, Vermont, and toured the Wild Flower Farm and had lunch in a restaurant. The Missisquoi Museum is commended for the publicity they gave to rural women and the WI this past year.

PONTIAC: Work with a construction gang, never with the wrecking crew. Lead in foods affects the kidneys, nerves, causes anemia, mental problems, lack of concentration, and lack of co-ordination. Bristol citizens formed an anti-dump committee to keep foreign garbage out of the county.

ROUVILLE: Abbotsford enjoyed several pot luch luncheons when husbands and children could also attend. Remembered shut-ins.

SHEFFORD: Granby Hill Mrs. Grenon, in Court of Canadian Citizenship, suggests that we get together a group of 50 in May to get our citizenship cards. Judge Mrs. Pierre Laporte might be able to attend the 40th anniversary of Citizenship. Granby West reports that Bourassa and Peterson formally commit themselves to closer co-operation in providing secondary education for Quebec and Ontario Francophones. Mr. Goldbloom said the ability to control the school system is at the heart of any community to survive. Waterloo Warden The pioneers who blazed the trails, now have descendants who burn up the roads. Learned about the English language and other languages in the world.

SHERBROOKE: Ascot held a gift wrapping contest. Belvidere worked at the Cancer Room making pads one day a month and gave fruit to the Grace Christian Home. Brompton Road held a family supper, and they made homemade Valentines with Annie Goodfellow, one of the oldest members, winning first prize fora crocheted heart. Lennoxville delivered gifts and baskets of fruit and cookies to shut-ins and worked in a Cancer Room one day a month. Milby held a successful auction.

STANSTEAD: The school fair is a joint effort by all members of the county; 1987 will be its 25th year. A Peace Poll was erected in one town. This was a joint effort by the town council and all organizations. A box of necessities were given to a needy family by one branch. Hatley two members received their 25-year-pins.

Mrs. Flora Rhicard, r, presenting Mrs. Frank Corey with a Life Membership.
She joined Stanbridge East WI in 1928.

Freer Trade for Quebec Agriculture: The Debate Continues

A lively and most informative seminar was held at Macdonald last November 27 on "The Effects of Freer Trade on the Quebec Agricultural Economy." An excellent group of speakers and members of a panel discussed the pros and cons of freer trade. This seminar was sponsored by the Quebec Women's Institutes in co-operation with the Federated Women's Institutes of Canada. A summary of similar seminars across Canada was presented as a brief to the federal government. It is challenging to have to report briefly on what was said during this most interesting day. Unfortunately many of the concerns raised will have to go unreported at this time.

A Canadian Viewpoint

The first speaker, Jim Lohoar, Acting Director of the International Trade Policy Division of Agriculture Canada, spoke on the background and structure of the trade negotiations. Here are a few excerpts.

"In order to put the agricultural aspects of the bilateral trade negotiations into perspective, it is useful to look at Canadian and U.S. trade and how it impacts on the agricultural sectors of the two countries. In 1985, our two-way trade was worth nearly $6 billion. When grains and oilseeds are excluded from the figures, the U.S. accounted for over 58 per cent of the total value of our agricultural exports to all countries in 1985. The value of U.S. agricultural exports represent some 22 per cent of farm cash receipts in that country. By comparison, Canadian exports represent 50 per cent of farm cash receipts; so you can see the importance of trade to our producers."

"Nearly half of Canada's farm exports was composed of live animals and livestock products. Fully 40 per cent of the U.S. farm exports to Canada were fresh and processed fruits and vegetables. In fact, Canada is the largest single market for U.S. fruits and vegetables."

"Our agricultural trade with the U.S. has a number of important characteristics: one is its wide diversity and scope. Virtually every product we grow is exported across the border to some extent. In many cases, the same products are traded both ways."

"In contrast to global agricultural trade, most of our bilateral trade is already duty free or subject to relatively low and, in many cases, equalized tariffs. Of course there are some non tariff barriers. Both countries have import quotas on dairy products. Canada has import quotas on poultry and eggs. The U.S. has import quotas on sugar and sugar containing products. We both have meat import laws which are triggered from time to time. Nevertheless, compared to other regional agricultural trade flows, Canada/U.S. farm trade is probably the least distorted by non tariff border measures."

"Next year when the last of the GATT Tokyo round tariff cuts, which were started in 1980, are phased in, it is estimated that approximately 60 per cent of all agricultural imports from the U.S. will enter Canada duty free whereas 50 per cent of Canadian agricultural exports to the U.S. will enter duty free. The average tariff on dutiable agricultural products in both countries is only about 6 per cent. The major reason for the relatively higher duty free access to Canada is the Canadian seasonal tariff structure for fresh fruits and vegetables which provides for duty free entry outside of the Canadian marketing season."

"The U.S. has been and is forecast to continue as Canada's largest, fastest growing and most diversified agricultural export market, but it is also a market at risk. A growing number of recent U.S. actions against Canadian exports including, for example, live swine, raspberries, and cut flowers illustrate the increasing propensity of U.S. farm interests and politicans to blame "unfair" imports on depressed farm income. And the events of the last few months do not suggest that the protectionist pressures in the U.S. are likely to be short-lived."

"How will agriculture fit into Canada-U.S. trade negotiations? Both governments continue to share the view that if either side identified possible exceptions in advance of the start of substantive negotiations, this would precipitate a deluge of exception requests which would effectively scuttle the negotiations before they start. Thus no sectors have been excluded at the start. What will be on the table at the end only time and negotiations will tell."

" I would hazard a guess that the two negotiating teams will find it convenient to discuss agriculture as a package. As I indicated, many Canadian and U.S. agricultural tariffs are already low or duty free because of past negotiations. What we have not been able to negotiate in the past are our respective non tariff import measures which in most cases are directly linked to domestic agricultural policies. Because of these domestic linkages, agriculture will not be an easy sector to negotiate."

An American Viewpoint

Carol Goodloe, a Canadian Analyst with the Economics Research Service of the United States Department of Agriculture, said that five or six years ago if she had been asked to discuss U.S. interests in agricultural trade with Canada her answer would have been brief, as the U.S. had a healthy agricultural trade surplus with Canada of almost $1 billion.But times have changed. "Between 1975 and 1981, U.S. agricultural exports to Canada grew about seven per cent annually. Canada is one of our most important and reliable customers. But the U.S. dollar has appreciated steadily against the Canadian dollar and in 1985 the traditional U.S. agricultural trade surplus with Canada became a deficit."

"Trade disputes in agricultural products are on the rise and tensions are escalating. As the U.S.'s agricultural trade balance with Canada has shifted, so too has the U.S.'s perception of Canada as a trade partner."

"In looking at U.S.-Canadian trade, it is first crucial to understand the overall setting of U.S. agriculture since the early 1980s. Declines in agricultural exports, low commodity prices, and falling incomes and land values have put some U.S. farmers out of business and severely hurt the rural economy in many parts of the country. The economic decline in the farm sector seems even more pronounced because of the phenomenal growth of farm exports in the 1970s and the increasing importance of those exports in the U.S. total trade balance."

"Given this less than rosy picture, how does Canada fit in with current U.S. concerns and interests? Certainly the U.S. views Canada as both a customer and a competitor. As a customer, the U.S. ships about one fifth of its total exports to Canada. In agricultural trade, Canada takes only about five per cent of U.S. exports, but has traditionally been one of the U.S.'s top five markets. As a competitor, Canada is a major wheat exporter to third country markets and also an important competitor in world coarse grain and oilseed markets. Canada is increasingly viewed as a competitor on our own turf, exporting growing quantities of livestock products, vegetables, sugar, and other products to the U.S. A whole range of bilateral commodity issues have sprung up between the two countries in recent years." (See Jim Lohoar's comments.) "It is important to note that U.S. objectives are consistent with and flow from the objectives in the new GATT round: 1) to improve market access, 2) freeze and phase out export subsidies, 3)harmonize health and sanitary regulations, and 4) adopt more effective dispute settlement procedures. In general, Canada has emphasized gaining relief or exemption from U.S. trade remedy laws, whereas the U.S. has focused on the use of subsidies and their distorting influence on agricultural markets."

"In both preliminary GATT discussions and the bilaterial talks, the U.S. has emphasized that it would like to see a reduction and eventual removal of barriers to trade, including programs and subsidies that influence or distort trade. This is where the hard part of negotiating comes in. What is a subsidy? Are we talking about all government programs? Which subsidies seriously distort trade, and which programs or subsidies can we agree to live with? If there is one tangible benefit that could come out of these discussions, a better undertsanding of the nature and impact of agricultrueal subsidies wouldn't be a bad one."

"Why is the U.S. interested in participating in these bilateral discussions. What does the U.S. feel it has to gain and lose? In general, the U.S. agricultural sector feels it has been hurt by unfair trading practices - Canadian and others - and that if these practices are remedied, U.S. farmers and exporters can compete in world markets. This idea is consistent with the U.S. position that 'everything's on the table for negotiation.' Not that the U.S. doesn't have its own vulnerable sectors and subsidy programs, but the general theme in both bilateral and multilateral negotations is discussion of all policies and programs to achieve greater trade liberalization."

A Quebec Viewpoint

Dr. Yvon Proulx, a dairy farmer and a professor in the Department of Rural Economy at Laval University, left no doubt as to his thoughts on freer trade - it would hurt Quebec farmers.

With the help of many graphs and tables, Dr. Proulx discussed the competitive position of Quebec's dairy, hog, beef, and poultry producers as compared to those in other provinces in Canada, and in the United States. "To be competitive," he said, "means to be able to sell products at prices no higher than our competitors. To be able to get returns on our resources no lower than our competitors without having to rely on higher subsidies than our competitors. If we are competitive we should gain ground on our competitors in the market place, so I have also looked for another criterion: the evolution over the recent past of the share of Canadian production which is realized by Quebec and the recent evolution of trade with the rest of the world, the U.S. in particular."

"Quebec's share in Canada's exports is constant; Quebec's share in Canada's imports is decreasing; the trade balance with all countries is improving substantially."

"Do Quebec farmers succeed in getting a return on their resources at least no lower

Moderator Marcel Couture asks for questions from the floor for Carol Goodloe, Jim Lohoar, and Yvon Proulx.

Professor Garth Coffin discusses freer trade with Marc Côté, centre, and Wayne Clark from Lachute.

than their competitors? I can show that the global net income over equity for 1980-1984 was around 9 per cent in Quebec, and around 3 per cent everywhere else (Ontario, the Prairies, Canada as a whole, and the U.S.). This is not a sign of non-competitiveness." (Dr. Proulx did point out that Quebec farmers have more debts than farmers in the rest of Canada and in the U.S.)

Is there a higher level of subsidy in Quebec than elsewhere? For a specific period Dr. Proulx showed total subsidies as a percentage of net income: 49 per cent in Quebec, 30 per cent in Ontario, 102 per cent in the prairies, 65 per cent is the average in Canada and 71 per cent is the average in the U.S. Quebec farmers are not more subsidized in the North American area.

"The position of Quebec agriculture is pretty good in most products; it is globally pretty good. There are a few important exceptions such as poultry and eggs, but Quebec would certainly be able to face competition in a world of free trade. Theory would suggest that freer trade would be good. It would generate more activity, create more income, more employment, and so on. In reality, for several reasons, I am opposed to this theory."

"It has obviously helped Quebec agriculture to become competitive with the Canadian dollar decreasing over time with the U.S., but I don't believe the Canadian dollar will continue to drop. If the Canadian dollar was to gain ground, obviously it would reduce our competitive position."

"One of the basic reasons why I think that a competitive free trade situation with the U.S. would not be good for Quebec agriculture is that the American market is already very well supplied with most of the products that we could supply. In reality it is over supplied."

"One U.S. method used to control over production is to pay farmers so that they won't produce. Another way to lower production is to lower costs. It is not appealing to me to get into free trade with a country where prices are going down."

"If present U.S. policy continues, a free trade situation could mean that the Canadian government would have to be prepared to increase the level of subsidies we already have. I am certain that a complete free trade situation between Canada and the U.S. would imply a complete destabilization of the Quebec agricultural sector."

Another Quebec Viewpoint

Dr. Garth Coffin, Chairman of the Department of Agricultural Economics, also discussed the implications for Quebec farmers.

"The most important issue for Quebec farmers is the threat to supply management in the dairy and poultry industries. How serious is that threat?"

"A quick review of our trade protection suggests that we do not have a great deal to give up within the agri-food sector except import quotas for dairy and poultry products. Given the nature of the U.S. poultry industry, it must be expected that the Americans will seek larger access to our market for poultry products. The situation with dairy is less clear. It appears that we could be more competitive in milk production but we would likely lose some volume. Even within the U.S., the dairy industry is gradually migrating southward as the northern states find it increasingly difficult to compete with their southern counterparts."

"I do not believe that we would ever go to a completely free trade basis in those products. But there is a threat to supply management whether it be from free trade or from within our own industry. The problem of quota values must be addressed. The price system must be permitted to reflect productivity improvements more quickly. Those pressures will increase as new technologies like bovine hormone applications come into use."

"One of the potential losses through freer trade is that of market stability. Unless the expansion of trade can lead directly to a greater and more sustainable balance between resource availability and market demand, we may simply enlarge the scope of instability which is already evident in some commodity markets. Unstable market conditions are one of the most important problems for agriculture."

"There is another important issue for farmers: even if we are competitive at the farm gate, is our processing industry efficient enough to provide fair returns to farmers and still remain competitive with the U.S.? This question is important for Quebec since most of our agri-food exports are in the form of processed or semi-processed products."

"In the agribusiness sector it is interesting that some of our best performers in exporting are those industries which are also most exposed to competition from imports: red meats, fruit and vegetable processing, flour and breakfast cereals, and distilleries.

"When one weighs all the factors it becomes apparent that we must negotiate with the U.S. We have little choice but to try and protect what access we have. We have too much to lose if we don't. But we must put a good deal of emphasis on the GATT negotiations as the best hope to expand our markets, especially for agriculture."

Members of the Panel

Warren Grapes, past president of the Quebec Farmers Association, led off the discussion by saying that as a dairy farmer and a concerned rural citizen he was against free trade. He pointed out that in 1986 surplus production in the U.S. of milk products alone was two to three times the yearly production in Canada and if we have free trade and the dollar was anywhere near equal, we would have the biggest rush of American milk into Canada with a lot of good Quebec dairy farmers being forced out of business.

He said that supply management is one of the best examples of government intervention in the market place. Not many would like to go back to the days before the system. The producer has gained more steadily in income because of marketing boards than he ever could have and we still have the cheapest food in the world. Supply management is not compatible with free trade, and our government should not even have agriculture on the table for discussion.

"We must examine any policies not only from an economical point of view but from their social impact. The space between cities is not a vacuum - it's the family farm and communities which serve farmers and farm production - jobs, schools, roads, and small businesses."

Roger D'Aoust, a hog producer from Ormstown, was much more optimistic. "We are probably the only farming group that has been in free trade for years. The U.S. shipped a lot of hogs into Canada, then we became more efficient and started shipping them to the U.S. We were the first victims of last year's tariff, but we lived through it. The tariff was left on live hogs so we got an incentive to kill the hogs in Canada and we're happy with this arrangement. Canada has put a tariff on corn which has increased my cost of production from $106 delivered to the farm to $126, which means about $18,000 a year difference for me. We can compete world wide with our hogs but we don't like the tariffs. We hope it won't stay on too long or the U.S. might put a tariff back on us."

Paul Ouellet, President of the Quebec Meat Processors and owner of the Ouellet Abattoir, said that a large percentage of Quebec hogs are killed at his abattoir and a large volume of packaged meat is exported to the U.S. "Free trade is to maintain or reduce the barrier. How can we refuse to sell to all those millions of people south of the border? Free trade should encourage us to be even more efficient. I know we can be."

The last member of the panel to speak was Serge Deschamps, Secretary of the Federation des productuers de volailles du Quebec. Asking what effects freer trade will have on the agricultural economy of Quebec begs the question, "Why was a Canadian Egg Markerting Agency formed in 1970, a Canadian Turkey Marketing Agency in 1974, and a Canadian Chicken Marketing Agency in 1977?" Before that time free access of U.S. products to the Canadian market was literally wiping out our domestic production. Consequently, the Canadian industry decided to set up a national supply management system which would curtail U.S. imports. Has the situation changed from an economic point of view? Could we now compete successfully with U.S. imports?

The answer is - absolutely not! Americans sell their oven-ready chicken at almost the same price as we sell our live chicken to slaughterhouses. To achieve the goals of supply-management in Canada it was and is recognized that there might be a price to be paid in somewhat higher prices to consumers than would most of the time be paid in the U.S., but this would be a small price for the advantages gained by the Canadian rural economy and society in security and equity of remuneration."

"We do not believe the U.S.-Canada negotiations should, or would, be jeopardized by a firm Canadian position that our supply management policies are non negotiable. Supply management in agriculture is a unique formula which reflects the Canadian mentality. It ensures a balance between producers and consumers by not favouring one group to the detriment of another. Rather than reject or denounce it, we should look to this model for inspiration."

Truman Clark and Yvon Proulx, both dairy farmers, share their views with Anne Robertson.

Newsmakers

ON CAMPUS

JACQUES JALBERT, MSc (Agr) '77, was appointed Director of the Dairy Herd Analysis Service (DHAS) as of February 1, 1987. Mr. Jalbert, who is a graduate of Laval University, has been with DHAS for the past nine years as the permanent representative of the Quebec Ministry of Agriculture, Fisheries and Food. He was part of the Research and Development team and placed great emphasis on all aspects of dairy management. Mr. Jalbert succeeds Dr. John Moxley who was Director for the past 20 years and is looking forward to retirement.

LINDA CURRIE, of the School of Dietetics and Human Nutrition, has been elected Vice-President of the Canadian Dietetic Association and EMERITUS PROFESSOR HELEN NEILSON has been appointed Honorary President.

STUART WILLOX, Dip '73, and NATALIE KNOTT, BSc (Agr) '85, were married on February 20, 1987. Stuart is a technician at the Emile A. Lods Research Centre and Natalie is a research assistant in the weeds lab in the Department of Plant Science.

SUSAN WILLIS, BSc (Agr) '80, who has been assisting Dr. Vickery in the apiary for three summers, has a position in Apiculture in Belize.

CHRISTENE RAFUSE, BSc (Agr) '81, has been appointed as a technician responsible for the management of the Macdonald College greenhouses.

ANNE MARIE PRUD'HOMME, (MSc in the Department of Plant Science) and MICHEL BERUBE (MSc in the Institute of Parasitology) were married in Laval on February 20, 1987. They have left for the Central Republic of Africa where Michel has a two-year contract in fish farming.

OFF CAMPUS

DONALD C. MACKAY, BSc (Agr), '45, PhD '54, is retiring from his position as research soil scientist with Agriculture Canada in Lethbridge, Alta. Don began his career with the N.S. Department of Agriculture and Marketing, was an instructor at NSAC, and was at the Kentville Research Station. He was also involved in soil research in Australia.

PETER Y. HAMILTON, BSc (Agr) '47, was named Professor Emeritus during the Autumn Assembly of the Nova Scotia Agricultural College. Peter is spending 1987 in Jamaica where he is working on an NSAC-Jamaican Agricultural Society project.

WALTER GRANT, BSc (Agr) '52, recently retired Deputy Minister of Agriculture and Marketing in N.S., received an Award of Merit from the Nova Scotia Federation of Agriculture.

H.F. MACRAE, BSc (Agr) 54, MSc (Agr) '56, PhD '60, has been appointed Chairman of the Canadian Agricultural Research Council.

DALE ELLS, BSc (Agr) '61, has been made president of the Canadian Association of Diploma in Agriculture Programs.

JOHN BROOKHOUSE, Dip '70, Senior Technician for the NSAC Plant Science Department, is on an eight-month assignment in Gambia helping to organize the farm at Gambia College.

JOY MACAULAY, BSc (Agr) '74, recently joined the Bureau of Nonprescription Drugs, Health Protection Branch, Health and Welfare, Ottawa. Drawing on her experience gained in the pharmaceutical industry in Montreal in 1983 and at the Canadian Pharmaceutical Association in Ottawa over the past three years, Joy is now involved in the review of labelling requirements for all new over-the-counter drugs in Canada.

BRUCE BISHOP, BSc (Agr) '75, was appointed supervisor of swine. Livestock Services Branch, N.S. Department of Agriculture and Marketing. Bruce previously worked for Ralston Purina in the Maritimes.

WALTER J. BROWN, BSc (Agr) '75, has been appointed field crop specialist for the southern agricultural region of New Brunswick. Walter joined the N.B. Department of Agriculture in '75 as an assistant district agriculturist. As well as general extension activities, he was responsible for the supervision of the central district 4-H program. He transferred to Sussex in '79 and became district agriculturist in '83. He will continue to advise farmers on various aspects of field crop production and will work closely with dairy and other livestock producers in promoting a quality forage program with particular emphasis on the production and storage of alfalfa. He will also work closely with the members of the Kings County Soil and Crop Improvement Association.

Congratulations to MARIE BUSSIERES, BSc (Agr) '80, for being featured in a full-page article in the January 22,1987, issue of *La Terre de Chez Nous*.

MICHEL GARDNER, BSc (Agr) '80, has been nominated as technical representative at the Product Marketing level of the Feed Supplement Division of Eastman Chem Inc. Prior to this nomination, he was product director at Ralston Purina. He has also worked as an agricultural consultant in Africa and in South America.

Newsmakers

VASILE KLAASSEN (nee GLATIOTIS) BSc (Agr) '80 and husband Grenville are pleased to announce the arrival of Jessica Elyse on December 18, 1986.

JEAN VAN DYKE MACLELLAN, BSc (Agr) '80, are the proud parents of Luke Gilmore, born November 6, 1986.

STEPHEN HINDRICHS, Dip '81, dropped in to catch up on Macdonald news and to tell us that he had been a flying instructor in Halifax and is now flying for Voyageur Airways in Ontario. The Airways fly out of North Bay, Sudbury, Toronto, and Ottawa, and he expected to be in the Sudbury area.

CHRIS RAPER, BSc (Agr) '82, was recently promoted to Accounting Manager of the Canadian Imperial Bank of Commerce in Calgary, Alta.

ALEX CROUSE, BSc (Agr) '84, married Heather Shaffelburg in June 1986. Alex is a technical sales representative for Dupont Agrichemicals. He lives in Port Williams, N.S., but travels throughout New Brunswick and Prince Edward Island.

Marc Vezina, BSc (Agr) '86, has left for Mali on a two-year contract with World University Services Canada. Projects will include irrigation, application of appropriate technology in ground water pumping, and food processing. Marc will be joining six volunteers who are already established in Mali, including Mac grads ALAIN KIRSCHBAUM, BSc (Agr Eng) '83, and EMMANUEL ROBIDAS, BSc (Agr) '84.

DECEASED

FREDERICK T. BIRD, BSc (Agr) '40, PhD '49, at Sault Ste. Marie, Ont., on October 2, 1984.

H. PAUL DUSSAULT, BSc (Agr) '45, MSc (Agr) '46, of Hull, Que., on March 1,1987.

LESLIE A. LYONS, BSc (Agr) '50, of Hamilton, Ont., on February 9, 1986.

ARTHUR CHARLES SHEPPARD, Honorary Curator of the Lyman Entomological Museum and Research Laboratory for two decades died on March 10, 1987, aged 84 years. Mr. Sheppard's personal collection is now housed in the Museum.

WHAT'S HAPPENING?

Where are you? What are you doing? What have you heard about your fellow grads? New jobs, promotions, awards, retirements. From a first job, through all the steps up the ladder, to retirement, and post-retirement - keep us informed on what's happening so we can pass the news along on these pages to your fellow grads. Any news you would like to share with us would be welcome. We delight in hearing from you and about you. Send information to Hazel M. Clarke, Macdonald Journal, Box 284, Macdonald College, Que. H9X 1CO

COMING EVENTS

Toronto Area Grads

Monday, May 25, 1987, Toronto area Mac Grads will be getting together for a reception at the World Trade Club at the World Trade Centre in Toronto. Special guest will be Dean Roger Buckland.

Ottawa Area Grads

Sunday, June 14, 1987, is the date and plans are already underway for another Ottawa Region Macdonald graduate reception-field day to be held at the farm of Gibson Patterson, BSc (Agr) '60, in Metcalfe, Ont., just outside of Ottawa. Hopes are that three past Deans (Dr. Dion, Dr. Blackwood, Dr. Lloyd), and our current Dean (Dr. Buckland) will all be able to make it.

Invitations will be going out to area grads for these events. For information, contact: Greg Weil, Development Office, Martlet House, McGill University, 3605 Mountain Street, Montreal, Quebec, H3G 2M1 (514) 392-5951.

May 4 - 22 International Drainage Course

May 7 Visit to Arboretum of competitors of the 1987 Merité Forestiers and the Minister of Forestry, Albert Côté

May 11 - 14 Quebec Women's Institute Annual Convention

May 21 Information Day on Swine Nutrition

June 5 Convocation

August 14 - 15 International Mastitis Symposium held in conjunction with International Veterinarians Congress, Montreal

September 23 Visit to Arboretum by a group from FAO

September 26 Macdonald Graduates Reunion

November 4 Quebec Farmers Association Annual Meeting

November 12 - 13 Annual Meeting of the Entomological Society of Quebec

November 28 Annual Handicraft and Christmas Tree Sale, Morgan Arboretum

While on a tour with Gavin Ross visiting McGill-Macdonald graduates in southwestern Ontario, Dr. Roger Buckland took time out to visit the Agriculture Canada Harrow Research Station where three of the senior scientists are Mac graduates, l to r, Richard Layne, BSc (Agr) '59. Roger Buckland, Frank Marks, BSc (Agr) '51, and Gordon Bonn, BSc (Agr) '67.

Newsmakers

Dietetics Pin Ceremony

Students completing the requirements for the BSc (FSc) - Dietetics Major - were invited to a pin presentation ceremony which was held at Macdonald College on December 5, 1986. This ceremony is the occasion when staff and placement dietitians and managers recognize the graduates' eligibility to enter the profession.

The idea of the pin came from the tradition of the pre-Stage era graduate dietetic internships when the internship hospital gave graduates their professional pin. Since McGill assumed the responsibility for the internship - Stage - we also created the McGill pin which is gold-filled, has the Macdonald crest and Mastery for Service banner, and the word "Dietitian."

Keeping In Touch

Into the 2lst Century

I am most impressed with the new, modern appearance of the Macdonald Journal. The cover photo is superb photography, the lay-out is most attractive and modern. You are to be congratulated for bringing the Journal into the 2lst century.

I expect that the editorial advisory board has also had a major influence over the changes in the Journal. Such an advisory board is an excellent idea. You obviously know how to pick your best ideas and then put them into practice.

Congratulations on the new Mac Journal.

Dr. Mark W. Waldron, Dip '55, BSc (Agr) '59
Director
Univeristy School of Part-Time Studies and Continuing Education,
University of Guelph

Read Cover to Cover

I wish to express my sincere thanks for the article you did on my college years at Macdonald and other feature items. It was much appreciated.

The last issue, which I read from cover to cover, was excellent. Sincerely hope this publication is kept going.

Walter Grant, BSc (Agr) '52
Truro, N.S.

Tremendous!

I thought the last issue was tremendous! And I liked the photos.

George Dion,
Luskville, Que.

Long and Happy Association

Let me congratulate you on the new look of the *Macdonald Journal*. In fact since it became a quarterly in 1982 I consider it a most informative alumni publication.

Having had a long and happy association with Macdonald College, I have enjoyed reading about the Clan Macdonald and the happenings at Mac. Articles which rate particular acclaim are those on the late Jim Houston, the McEwen brothers, the Ness family, and many other interesting items.

It is unfortunate that I live so far away from Macdonald and have only managed about four or five visits since graduation. This makes your excellent Journal even more important to me. I do so look forward to receiving it.

Joseph W. Bryson, Dip '41, BSc (Agr) '51
Adelaide, South Australia
formerly from Ormstown, Que.

The New Look

I enjoyed the content before but do like the new look. It's jazzed up and is au courant with what the younger generation will enjoy. Our class will be celebrating our 50th Anniversary this fall, and I'm looking forward to the celebrations.

Don Adamson, BSc (Agr) '37
Beaconsfield, Que.

A Wonderful Macdonald

The picture on the back cover of the February issue of the *Macdonald Journal* reminds me of my wonderful stay at Macdonald College about a decade ago. It was the summer season when my wife, daughter, and I moved from Georgia in the States to Quebec. We were most impressed with the weather and the dignified buildings with the red tiles are unforgettable. It is interesting to see your new Macdonald-Stewart Building.

I was very glad to have the opportunity to work with Dr. Roger Buckland who is now the Dean and Vice-Principal, though the period I stayed there was short. Behind your new building I can see the poultry houses. The highway very close to the campus was very convenient for us to get to downtown Montreal, and we cannot forget the large College sign beside the highway.

Every scene on the campus is coming across my mind and bringing splendid memories of Canada. I hope I may visit Macdonald again in the future.

Noboru Fujihara, PhD,
Kyushu University
Fukuoka, Japan.

The Livestock Show

I read the two-part article on the history of the Livestock Show with interest but there seems to be some differences of opinion as to when the Little Royal or Livestock Show started. I thought the first show was in 1932. I was lucky enough to come in second in 1932 and first in 1933, and I attended the show quite a few times.

I attended the Dip '33 Reunion in 1983 and hope we can get a few of our class together for a Reunion in 1988. Meanwhile I am enclosing a renewal to the *Macdonald Journal*.

J. Carman Goundrey, Dip '33
Howick, Que.

(**Editor's Note**: Mr. Goundrey enclosed two issues of *The Failt-Ye Times*. Excerpts from the March 17,1933 issue say:

"On Saturday afternoon, March llth, under ideal weather conditions, the College witnessed one of the most successful live stock shows of late years. It was an innovation to the extent that it took the form of a judging competition, in place of having the students compete in the fitting and showing of animals, as has been the custom in the past.

"Through the work of Professor Ness, the services of outside men of wide experience were secured to handle the classes.

"The two high men of the competition were: first: J.L. Goundrey; second, G. Robinson. Both these men were members of the second year Diploma and they won the respective medals for their placing.

"The winners in each section, in order of merit, were as follows: Diploma 1, Greenhill, Green, Webb, Hannay, and Corfield; Diploma 2, Goundrey, Robinson, McElroy, Templeton, and L.B. Roy; Diploma (Hort), Brand, Phillips, Bisley, Watkins, and Berry; Teachers, Butler, Goodenough, Smellie, Brown, and Ladd; Degree, Clements, Sidaway, Nixon, Horsnall, and Hilton.

"Melvin Butler was awarded the prize offered to the highest teacher by the staff of the School for Teachers."

WI Reaction

"The WI anniversary coverage in the November Journal was super, and we are looking forward to the new format in the February issue," wrote Dorothy Geddes, Secretary for the Sherbrooke County WI., and the following are a few comments on the February issue sent in by members of the Ascot WI: Congratulations! Good Work! Liked the New Look! Keep up the good work and appearance of the Journal. My husband enjoyed it as did I. From Mickie Povey, Secretary of Belvidere WI: "Congratulations on the February issue of the Macdonald Journal. It was quite different. Everyone particularly liked the back cover Diploma ad featuring the aerial view of Macdonald. It is so colourful. There were many good photos and it was very informative. Keep up the good work."

Most Informative

Just read the February issue of the Macdonald Journal and found it most informative. I look forward to receiving it in the future. It is particularly interesting to see how things are proceeding along, and I like to keep an eye out for how former friends are doing.

Danny Dempster, BSc (Agr) '72
Executive Vice-President
Canadian Horticultural Council
and
Canadian Fruit Wholesalers' Association

Congrats!

Congrats on your "new" magazine. I'm enclosing a cheque for a subscription for my nephew who has sheep and beef. I'm sure he will learn a lot from the Journal.

Ethelyn Enright Vautier
Shigawake, Que.

Correction

I would like to thank all those who have commented on the new-look Macdonald Journal. We have received some very kind comments; we have received some just criticism. I do apologize for the typos and other errors that, for various reasons, appeared in the issue. We hope to adjust to the new technology we are now using and trust that this issue will be "cleaner." Do keep the comments coming; we learn from them. In the meantime, there is one correction I would like to make. In Rudi Dallenbach's excellent article "Not Just Another Barn!" page 6, No. 6: The stalls vary in size from 132 to 145 centimetres in width -- not 132 to 182 centimetres as printed. My apologies to Rudi and to our readers. Hazel M. Clarke, Editor

Continued from page 18

ogy and ask intelligent question about their operations and techniques. It will pay in the long run to be an informed contractee. You should be guaranteed that all reasonable precautions will be taken during the application of a pesticide to protect the surrounding environment, your health and that of your family and neighbours.

What does the future hold for pesticide use in Quebec and other provinces? While the registration for use will remain with Agriculture Canada in the foreseeable future, provinces will be taking a more prominent stance on commercial and home-and-garden use of pesticides, their sales and distribution and restrictions on use. At the time of writing, in Quebec, a proposed pesticide act will be brought to the Assembly in April for enactment. It will provide for wide ranging controls over pesticide use in the province, including permit requirements, certification of applicators in all sectors, and education programs for users. Restrictions may be imposed on the availability and sources where complete (dilute) or ready-to-use formulations, concentrated preparations, etc., may be purchased. The concept of posting sprayed areas has been considered, the requirement being a suitable sign stating when the area was sprayed,with what it has been sprayed, by whom, and clearly warning that re-entry into the area should not occur before a certain lapse of time. In this interval, the pesticide will become "fixed" on the plant material, insuring minimal risk from residues of the agent that can be dislodged and be absorbed through the skin. In my opinion, the future will see increased governmental vigilance and control of pesticide use and the technology of application. There will be improvement in application technology and restrictions on types of applications and close supervision of personnel. It is imperative that users develop a greater sense of responsibility or face tighter control over their practices.

It is understood that chemicals will be necessary for pest control, but it is the responsibility of all to see that they are used effectively, efficiently and carefully in an intelligent manner.